

ENVIRONMENTAL ASSESSMENT

**Construction of Guam High School and  
Commander William C. McCool  
Elementary/Middle School**

**Naval Hospital Complex and  
Apra Harbor Naval Complex, Guam**

Department of Defense Education Activity  
September 2004

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>00 SEP 2004</b>		2. REPORT TYPE <b>N/A</b>		3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>ENVIRONMENTAL ASSESSMENT: Construction of Guam High School and Commander William C. McCool Elementary/Middle School</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Helbert Hastert and Fee Planners, Inc. 733 Bishop Street, Suite 2590 Honolulu, HI 96813</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>The original document contains color images.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>UU</b>	18. NUMBER OF PAGES <b>96</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



DEPARTMENT OF THE NAVY  
COMMANDER, NAVY INSTALLATIONS  
2000 NAVY PENTAGON  
WASHINGTON, D.C. 20350-2000

5090  
Ser CNI N45/042  
5 Nov 2004

From: Commander, Navy Installations Command  
To: Commander, United States Naval Forces Marianas (N45)  
  
Subj: FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION OF  
GUAM HIGH SCHOOL AND COMMANDER WILLIAM C. MCCOOL  
ELEMENTARY/MIDDLE SCHOOL, NAVAL HOSPITAL COMPLEX AND APRA  
HARBOR NAVAL COMPLEX, GUAM  
  
Ref: (a) Commander, US Naval Forces Marianas ltr 5090,  
Ser N45/0863 dated 30 Sep 04  
(b) OPNAVINST 5090.1B

Encl: (1) Finding Of No Significant Impact (FONSI)

1. An Environmental Assessment (EA) dated September 2004 for the subject action was forwarded by reference (a) for review in accordance with reference (b). It has been determined that preparation of an Environmental Impact Statement (EIS) is not required. Accordingly, it is considered that, with implementation of the following paragraph and any mitigation measures described in enclosure (1), compliance with the National Environmental Policy Act has been effected and, in this regard, the project may be initiated.

2. Per OPNAVINST 5090.1B, the action proponent is responsible for publishing a Notice of Availability (NOA) in the appropriate local newspaper(s) upon receipt of the signed FONSI. The purpose of the NOA is to provide public notification of the FONSI while avoiding the cost of publishing the entire FONSI. As such, the NOA should be a succinct, one-page or less, synopsis of the FONSI. The NOA should include the name of the agency, action proponent, title of EA, statement of the proposed action, list of alternatives considered, conclusion, and point of contact with name, telephone number, address, and e-mail address to request copies of the FONSI and/or EA. The NOA should be published for three consecutive days. If the EA/FONSI includes a signed Conformity Determination, the action proponent must publish the NOA within 30 days of signature.

Subj: FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION OF  
GUAM HIGH SCHOOL AND COMMANDER WILLIAM C. MCCOOL  
ELEMENTARY/MIDDLE SCHOOL, NAVAL HOSPITAL COMPLEX AND APRA  
HARBOR NAVAL COMPLEX, GUAM

3. Questions regarding this FONSI may be directed to Dan Hayes  
at 202-433-4482.

  
R. SCOTT MARKERT  
By direction

**DEPARTMENT OF DEFENSE  
DEPARTMENT OF THE NAVY**

**FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION OF GUAM HIGH SCHOOL AND COMMANDER WILLIAM C. MCCOOL ELEMENTARY/MIDDLE SCHOOL, NAVAL HOSPITAL COMPLEX AND APRA HARBOR NAVAL COMPLEX, GUAM**

Pursuant to the National Environmental Policy Act of 1969 (42 USC §4321, et seq.), as implemented by the Council on Environmental Quality regulations (40 CFR Parts 1500-1508) the Office of the Chief of Naval Operations Instruction 5090.1B Change-4 and the Department of Navy Procedures for Implementing the National Environmental Policy Act (32 CFR Part 775), the Department of the Navy and the Department of Defense Education Activity (DoDEA), gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement (EIS) is not required for the above action.

**Proposed Action.** The Proposed Action is to construct a new Guam High School at the Naval Hospital Complex in Agana Heights, Guam and a new McCool Elementary/Middle School (McCool ES/MS) at the former Sumay housing site at the Apra Harbor Naval Complex to replace existing Guam High School and McCool ES/MS facilities. The new Guam High School would have a capacity to accommodate approximately 500 students, with space to expand to a future capacity of up to 650 students. The new McCool ES/MS would have a capacity to accommodate approximately 900 students, with space to expand to a future capacity of up to 1,100 students.

The purpose of the action is to construct permanent high school and elementary/middle school facilities on Guam that would support DoDEA's educational mission. The action is needed because the existing school facilities are substandard and temporary in nature and do not have space for future expansion.

**Existing Conditions.** Guam High School is located on Nimitz Hill and currently serves approximately 500 students. The school began operating in the 1997-98 school year in a former Commander, U.S. Naval Forces, Marianas headquarters building (Building 200) constructed in the early 1950s. Since 1997, additional interim facilities have been constructed to address shortfalls in the existing building until an adequate replacement facility could be constructed. These facilities include a gymnasium, science classrooms, and a cafeteria, music, and art facilities. However, despite the construction of the interim facilities, shortfalls still remain. Shortfalls include undersized classrooms; a shortage of restroom facilities; and the lack of space for graphic arts classes, chorus/band and other special needs programs. Due to lack of athletic facilities, student athletic events must be held off-campus, at a significant cost to the athletic program.

McCool ES/MS, formerly Guam South Elementary/Middle School, is located in Apra Heights, and currently serves approximately 900 students from the southern portion of Guam. The school began operations in the 1997-98 school year in a former Bachelor Quarters and Administrative Office Complex (Building 1475) constructed in the 1960's. Additional buildings have been constructed to provide a gymnasium, cafeteria/music building, and kindergarten classroom facility. The classrooms at the school are undersized. Additionally, the school buildings sustained significant damage from an earthquake that occurred in 2001.

**Alternatives Analyzed.** Alternatives analyzed include the construction of the schools at alternate sites (Guam High School at Barrigada and the McCool ES/MS at a second Apra Harbor Naval Complex site known as Dadi Triangle) and the No Action Alternative. Other alternatives considered, but eliminated from further evaluation include the renovation and repair of existing facilities, and new construction at the existing school sites. These alternatives were eliminated because the alternative did not meet project objectives. The No Action Alternative was not selected because it would not achieve project objectives.

**Environmental Effects.** The Proposed Action would not result in significant impacts on the following resource areas: soils, topography, and drainage; ground and surface water; air quality and noise; flora and fauna; public infrastructure; hazardous and regulated materials; cultural resources; or land use compatibility. Traffic was assessed at key intersections and it has been determined that the Proposed Action would not have significant impacts on local and regional traffic. No cumulative adverse impacts are anticipated as a result of the Proposed Action. The Proposed Action and alternatives would not be expected to create environmental health and safety risks that may disproportionately affect children, minority, or disadvantaged populations. The Navy has concluded that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any coastal use or resource of Guam's Coastal Zone.

The Navy has consulted with the Guam Historic Preservation Officer (GHPO) pursuant to Section 106 of the National Historic Preservation Act. GHPO has determined that ground disturbing activities near the McCool ES/MS site have the potential to encounter and adversely affect cultural resources. GHPO has accepted an Archaeological Monitoring and Discovery Plan prepared by the Navy that would be implemented during construction.

**Findings.** Based on information gathered during preparation of the EA, the Department of the Navy finds that implementing the Proposed Action will not significantly impact the quality of the environment. The EA and FONSI addressing this action may be obtained by interested parties by contacting Commander, Naval Facilities Engineering Command, Pacific, 258 Makalapa Drive, Suite 100, Pearl Harbor, Hawai'i 96860-3134 (Attention: Ms. Paulette Chang, EV31PC), telephone (808) 472-1383. A limited number of compact disks are available to fill single copy requests.

**NOV 04 2004**

Date



C. E. WEAVER  
Rear Admiral, U. S. Navy  
Commander, Navy Installations Command

ENVIRONMENTAL ASSESSMENT

**Construction of Guam High School and  
Commander William C. McCool  
Elementary/Middle School**

**Naval Hospital Complex and  
Apra Harbor Naval Complex, Guam**

Department of Defense Education Activity  
September 2004

## Cover Sheet

<b>Proposed Action</b>	The U.S. Department of Defense Education Activity proposes to construct a new Guam High School and new Commander William C. McCool Elementary/Middle School (McCool ES/MS) on Guam to replace existing Guam High School and McCool ES/MS facilities.
<b>Type of Document</b>	Environmental Assessment (EA)
<b>Lead Agency</b>	U.S. Department of Defense Education Activity (DoDEA)
<b>For Further Information</b>	Ms. Paulette Chang, EN1831PC Environmental Planning Division Pacific Division, Naval Facilities Engineering Command 258 Makalapa Drive, Suite 100 Pearl Harbor, HI 96860-3134 Telephone: (808) 472-1383

## Summary

This EA was prepared in compliance with the National Environmental Policy Act (NEPA), United States Code title 42, sections 4321 to 4370f, as implemented by Council of Environmental Quality regulations provided in Code of Federal Regulations (CFR) title 40, Parts 1500 to 1508 (40 CFR 1500, et seq.), Office of the Chief of Naval Operations Instruction 5090.1B, Change-4, Environmental and Natural Resources Programs Manual of June 4, 2003, and the Department of Navy Procedures for Implementing NEPA (32 CFR 775).

The purpose of the action is to provide permanent high school and elementary/middle school facilities on Guam that would support DoDEA's educational mission. The action is needed because the existing school facilities are substandard and temporary in nature, and do not have adequate space for future expansion.

DoDEA proposes to construct a new Guam High School at the Naval Hospital Complex in Agana Heights and a new McCool ES/MS at the former Sumay Housing site within the Apra Harbor Naval Complex to replace existing Guam High School and McCool ES/MS facilities. The new Guam High School would have a capacity to accommodate approximately 500 students, with space to expand to a future capacity of up to 650 students. The new McCool ES/MS would have a capacity to accommodate approximately 900 students, with space to expand to a future capacity of up to 1,100 students.

Alternatives analyzed include the construction of the schools at alternate sites (Guam High School at Barrigada and the McCool ES/MS at a second Apra Harbor Naval Complex site known as Dadi Triangle) and the No Action Alternative. Other alternatives considered, but eliminated from further evaluation, include the renovation and repair of existing facilities, and new construction at the existing school sites.

The Proposed Action would not result in significant impacts on the following resource areas: soils, topography, and drainage; ground and surface water; air quality and noise; flora and fauna; public infrastructure; hazardous and regulated materials; cultural resources; or land use compatibility. Traffic was assessed at key intersections and it has been determined that the Proposed Action would not have significant impacts on local or regional traffic. The Proposed Action would result in short-term socioeconomic benefits associated with construction related jobs, and long-term socioeconomic benefits associated with increased employment opportunities. The Proposed Action would not create environmental health and safety risks that may disproportionately affect children, minority, or disadvantaged populations. The Commander, U.S. Naval Forces Marianas (COMNAVMARIANAS) has determined that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any coastal use or resource of Guam's Coastal Zone. COMNAVMARIANAS has complied with Section 106 of the National Historic Preservation Act by consulting with the Guam Historic Preservation Officer (GHPO). GHPO has determined that ground disturbing activities near the McCool ES/MS site have the potential to encounter and adversely affect cultural resources. GHPO has accepted COMNAVMARIANAS's archaeological monitoring and discovery plan, which would be implemented during construction at the McCool ES/MS site.

## TABLE OF CONTENTS

<b>1.0 PURPOSE AND NEED FOR ACTION.....</b>	<b>1-1</b>
1.1 Summary of Proposed Action .....	1-1
1.2 Purpose and Need.....	1-1
1.3 Scope of this Environmental Assessment .....	1-2
1.3.1 National Environmental Policy Act .....	1-2
1.3.2 Section 106, National Historic Preservation Act .....	1-2
1.3.3 Section 402, National Pollutant Discharge Elimination System .....	1-2
1.3.4 Coastal Zone Management Act .....	1-4
1.3.5 Guam Sewer Construction Permit .....	1-4
1.3.6 GEPA Clean Air Act Permit Modification .....	1-4
1.3.7 Guam Department of Public Works Clearing and Grading Permit.....	1-5
<b>2.0 PROPOSED ACTION AND ALTERNATIVES.....</b>	<b>2-1</b>
2.1 Introduction .....	2-1
2.2 Proposed Action .....	2-1
2.3 Alternatives .....	2-6
2.3.1 Reasonable Alternatives .....	2-6
2.3.2 No Action Alternative .....	2-7
2.3.3 Alternatives Considered and Eliminated from Further Evaluation .....	2-7
2.4 Environmental Effects of the Proposed Action and Alternatives.....	2-7
<b>3.0 AFFECTED ENVIRONMENT .....</b>	<b>3-1</b>
3.1 Overview.....	3-1
3.1.1 Topography and Drainage.....	3-1
3.1.2 Flora and Fauna.....	3-3
3.1.3 Cultural Resources .....	3-3
3.1.4 Air Quality and Noise .....	3-6
3.1.5 Hazardous and Regulated Materials.....	3-7
3.1.6 Ground and Surface Water Resources.....	3-7
3.1.7 Visual Resources .....	3-8
3.1.8 Public Utilities and Services.....	3-8
3.1.9 Land Use Compatibility .....	3-9
3.1.10 Socioeconomic Factors .....	3-11
3.2 Traffic.....	3-11
3.2.1 Proposed Action.....	3-12
3.2.2 Reasonable Alternative.....	3-13
<b>4.0 ENVIRONMENTAL CONSEQUENCES .....</b>	<b>4-1</b>
4.1 Overview.....	4-1
4.1.1 Topography and Drainage .....	4-1
4.1.2 Flora and Fauna.....	4-1
4.1.3 Cultural Resources .....	4-1
4.1.4 Air Quality and Noise .....	4-2
4.1.5 Hazardous and Regulated Materials.....	4-2
4.1.6 Ground and Surface Water Resources.....	4-4
4.1.7 Visual Resources .....	4-4
4.1.8 Public Utilities and Services.....	4-5
4.1.9 Land Use Compatibility .....	4-6
4.1.10 Socioeconomic Factors .....	4-8

4.2 Traffic.....	4-8
4.2.1 Proposed Action.....	4-8
4.2.2 Reasonable Alternatives .....	4-10
4.3 Cumulative Impacts .....	4-11
4.4 Compliance with Executive Orders .....	4-12
4.4.1 Executive Order 12898, Environmental Justice in Minority Populations and Low-Income Populations.....	4-12
4.4.2 Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks.....	4-12
4.4.3 Executive Order 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition .....	4-13
4.4.4 Executive Order 13123, Greening the Government Through Efficient Energy Management.....	4-13
4.5 Compliance with the Objectives of Federal Land Use Policies, Plans and Controls .....	4-13
4.5.1 Guam Military Land Use Master Plan (GMLUMP) .....	4-13
4.5.2 Coastal Zone Management Act .....	4-13
4.5.3 Irreversible and Irretrievable Commitments of Resources .....	4-14
4.6 Relationship of Short-Term Uses and Long-Term Productivity .....	4-14
4.7 Energy Requirements and Conservation Potential.....	4-14
<b>5.0 LIST OF AGENCIES CONSULTED .....</b>	<b>5-1</b>
<b>6.0 REFERENCES.....</b>	<b>6-1</b>
<b>7.0 LIST OF PREPARERS .....</b>	<b>7-1</b>

## LIST OF FIGURES

Figure No.	Page
1. Existing DoDEA Guam High School & McCool ES/MS Locations .....	1-2
2. Proposed Action and Reasonable Alternatives School Locations .....	2-2
3. Guam High School Naval Hospital Location .....	2-4
4. McCool ES/MS and Dadi Triangle Apra Harbor Locations .....	2-5
5. Guam High School Barrigada Alternative Location.....	2-8
6. McCool ES/MS Site.....	3-4

## LIST OF TABLES

Table No.	Page
Table 1: Summary of Environmental Effects of the Proposed Action and Alternatives.....	2-9
Table 2: Summary of Potential Traffic Impacts .....	4-11

## APPENDICES

- Appendix A: National Historic Preservation Act Section 106 Correspondence
- Appendix B: Archaeological Monitoring and Discovery Plan
- Appendix C: Agency Correspondence

**LIST OF ACRONYMS AND ABBREVIATIONS**

AC	asbestos cement
ACM	asbestos containing materials
ACHP	Advisory Council on Historic Preservation
AFB	Air Force Base
AICUZ	Air Installations Compatible Use Zone
BMPs	Best Management Practices
BSP	Government of Guam Bureau of Statistics and Plans
BUMED	U.S. Navy Bureau of Medicine and Surgery
CAA	Clean Air Act
CATV	cable television
CBOC	Community Based Outpatient Clinic
C/D	Class/Division
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIP	Capital Improvement Project
cm	centimeter(s)
COMNAVMARIANAS	Commander, U.S. Naval Forces Marianas
CZMA	Coastal Zone Management Act
DoD	Department of Defense
DoDEA	Department of Defense Education Activity
DDESS	Domestic Dependent Elementary and Secondary Schools
DNL	Day and Night Average Sound Level
DPW	Government of Guam Department of Public Works
DSO	District Superintendent Office
EA	Environmental Assessment
EMF	Electromagnetic Field
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ES/MS	Elementary/Middle School
ESQD	Explosive Safety Quantity Distance
et seq.	et sequentes, meaning "and the following"
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GCA	Guam Code Annotated
GEPA	Guam Environmental Protection Agency
GHPO	Guam Historic Preservation Officer
GTA	Guam Telephone Authority
GWA	Guam Waterworks Authority
gpd	gallons per day
ha	hectare(s)
IBD	Inhabited Building Distance
IWDS	independent wastewater disposal system
km	kilometer(s)
kV	kilovolt(s)
l	liter(s)
lpd	liters per day
LAN	local area network
LBP	lead based paint
LOS	level of service
m	meter(s)
m <sup>2</sup>	square meter(s)

MCV	Marianas Cable Vision
mgd	million gallons per day
mld	million liters per day
msf	million square feet
MW	megawatt(s)
McCool ES/MS	Commander William C. McCool Elementary/Middle School
NAVFAC	Naval Facilities Engineering Command
NAVFAC PACIFIC	Naval Facilities Engineering Command, Pacific
NCTS	Naval Computer and Telecommunication Station
n.d.	not dated
NEPA	National Environmental Policy Act
NEW	Net Explosive Weight
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
No.	number
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OPNAVINST	Chief of Naval Operations Instruction
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PL	Public Law
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
ROW	right-of-way
RTF	Radio Transmission Facility
sf	square feet
TCLP	Toxicity Characteristic Leaching Procedure
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WWII	World War II
WWTP	wastewater treatment plant
VA	Veterans Administration
§	Section

## Executive Summary

This Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA), United States Code title 42, sections 4321 to 4370f, as implemented by Council of Environmental Quality regulations provided in Code of Federal Regulations (CFR) Title 40, Parts 1500 to 1508 (40 CFR 1500, et seq.), Office of the Chief of Naval Operations Instruction 5090.1B, Change-4, Environmental and Natural Resources Programs Manual of June 4, 2003, and the Department of Navy Procedures for Implementing NEPA (32 CFR 775). This EA analyzes the potential impacts of the Proposed Action and alternatives, and it is intended to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a Finding of No Significant Impact.

**Purpose of and Need for the Action.** The purpose of the action is to construct permanent facilities that would support the Department of Defense Education Activity's (DoDEA) educational mission. The action is needed because the existing school facilities are substandard and temporary in nature, and do not have adequate space for future expansion. Guam High School is currently located within the former Commander, U.S. Naval Forces Marianas (COMNAVMARIANAS) headquarters building on Nimitz Hill. The Commander William C. McCool Elementary/Middle School (McCool ES/MS) is currently located in a former Bachelor Quarters and Administrative Office Complex (Building 1475) in Apra Heights. Neither of the existing schools have the necessary on-site facilities required to accommodate desired school programs or adequate space for future expansion.

**Proposed Action.** DoDEA proposes to construct a new Guam High School at the Naval Hospital Complex in Agana Heights and a new McCool ES/MS at the former Sumay housing area within the Apra Harbor Naval Complex. These new facilities would replace the existing Guam High School and McCool ES/MS. The new Guam High School would have a capacity to accommodate approximately 500 students, with space to expand to a future capacity of 650 students. The new McCool ES/MS would have a capacity to accommodate approximately 900 students, with space to expand to a future capacity of 1,100 students. Construction of the schools would take place in two phases, with the high school beginning classes with school year 2006-07, and the ES/MS beginning classes with school year 2007-08.

**Alternatives.** Alternatives considered include the construction of the schools at alternate sites (Guam High School at Barrigada and the McCool ES/MS at an Apra Harbor Naval Complex site known as Dadi Triangle) and a No Action Alternative. Other alternatives considered but eliminated from further evaluation include the renovation and repair of existing facilities, and new construction at the existing school sites.

**Environmental Consequences.** The Proposed Action and alternatives would not result in significant impacts on the following resource areas: soils, topography, and drainage; ground and surface water; air quality and noise; flora and fauna; public infrastructure; hazardous and regulated materials; cultural resources; or land use compatibility. Traffic was assessed at key intersections and it has been determined that the Proposed Action would not have significant impacts on local or regional traffic. The Proposed Action would result in short-term socioeconomic benefits associated with construction related jobs, and long-term socioeconomic benefits associated with increased employment opportunities. The Proposed Action and alternatives would not be expected to create environmental health and safety risks that may disproportionately affect children, minority, or disadvantaged populations. COMNAVMARIANAS has concluded that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any

coastal use or resource of Guam's Coastal Zone. COMNAVMARIANAS has consulted with the Guam Historic Preservation Officer (GHPO) with respect to Section 106 of the National Historic Preservation Act. GHPO has determined that ground-disturbing activities near the McCool ES/MS site have the potential to encounter and adversely affect cultural resources. GHPO has accepted an archaeological monitoring and discovery plan that will be implemented during construction.

**Traffic.** Traffic was assessed at key intersections, and it has been determined that the Proposed Action and alternatives would not have significant impacts on local or regional traffic at any of the proposed sites. Regional impacts would be negligible because the existing schools would be relocated to new sites within the same general area. The proposed relocation of each school would have insignificant localized impacts as a consequence of increased bus and automobile traffic. The highest volumes of school-generated traffic would occur before morning and afternoon peak traffic hours. During school hours, traffic entering and leaving each school is expected to be minimal. Under the Proposed Action for Guam High School, there would be no impact on emergency vehicle operations/access to the Naval Hospital Complex as these vehicles would continue to receive priority status at the main gate. Under the No Action Alternative, new schools would not be constructed, resulting in no change to traffic conditions. Modified security procedures or contingency operations affecting traffic at installation gates (e.g., enhanced threat conditions, special events, etc.) would be dealt with on a case-by-case basis, with the DoDEA District Superintendent Office coordinating necessary requirements with COMNAVMARIANAS Public Safety Office.

The Proposed Action and alternatives, when added to other past, present, and reasonably foreseeable future actions would not have a significant cumulative impact on the environment. Construction of a replacement Naval Hospital and VA Clinic is projected to occur during FY08 through FY10, after completion of the Proposed Action. Because the construction periods would not overlap, there would be no cumulative construction period impacts. The Proposed Action and alternatives represent a change from current land use, and an increase in the utilization of the property at each site. However, each site is wholly within an existing Naval Facility, and no foreseeable future actions that could be influenced by development of the project sites have been identified.

**Conclusion.** Based on information gathered during preparation of the EA, implementing the Proposed Action will not significantly impact the quality of the environment.

## **1.0 PURPOSE AND NEED FOR ACTION**

### **1.1 Summary of Proposed Action**

The Department of Defense (DoD) schools on Guam are operated by Department of Defense Education Activity (DoDEA) as the Domestic Dependent Elementary and Secondary Schools (DDESS) system. The DDESS schools on Guam are operated to serve the children of military service members and qualified DoD civilian employees.

DoDEA proposes to construct a new Guam High School at the Naval Hospital Complex in Agana Heights and a new Commander William C. McCool Elementary/Middle School (McCool ES/MS) at the former Sumay housing area within the Apra Harbor Naval Complex. These new facilities will replace the existing Guam High School and McCool ES/MS which will be retained by Commander, U.S. Naval Forces Marianas (COMNAVMARIANAS). The new Guam High School will have a capacity to accommodate approximately 500 students, with space to expand to a future capacity of 650 students. The new McCool ES/MS will have a capacity to accommodate approximately 900 students, with space to expand to a future capacity of 1,100 students. Construction of the schools would take place in two phases, with the high school beginning classes with school year 2006-07, and the ES/MS beginning classes with school year 2007-08.

### **1.2 Purpose and Need for Action**

The purpose of the action is to construct permanent facilities that would support the DoDEA's educational mission.

The action is needed because existing school facilities are substandard and temporary in nature, and do not have adequate space for future expansion. Guam High School is currently located within the former COMNAVMARIANAS headquarters building on Nimitz Hill (Building 200). The McCool ES/MS is currently located in a former Bachelor Quarters and Administrative Office Complex (Building 1475) in Apra Heights. Neither of the existing schools have the necessary on-site facilities required to accommodate desired school programs or adequate space for future expansion. DoDEA, as part of its planning initiatives, has reserved space within the project sites to meet future expansion requirements.

Guam High School currently serves approximately 500 students (school year 2003-04). The school began operating in the 1997-98 school year in a former headquarters building constructed in the early 1950s. Since 1997, additional interim facilities have been constructed to mitigate shortfalls in the existing building until an adequate replacement facility could be funded and constructed. These facilities include a practice gymnasium, separate outbuildings for Junior Reserve Officer Training Corps and science classrooms, and the renovation of a former Navy weather office to provide a cafeteria, music, and art facilities. However, despite the construction of the interim facilities, shortfalls still remain. Former administrative offices that are currently used as classrooms are narrow, undersized, and poorly configured. There is a shortage of restroom facilities and the corridors and stairwells are constricted, restricting use of student lockers and obstructing student circulation during class changes. Due to the lack of space, the library is located in a series of basement rooms, there are no graphic arts classes, and chorus/band and special needs programs are limited. The interim

practice gymnasium is not air-conditioned and cannot accommodate spectators or stage performances. The only athletic field is a practice soccer field. There are no football, track, baseball, softball, or tennis facilities. Athletic events must be held off-campus, at a significant cost to the athletic program.

McCool ES/MS, formerly Guam South Elementary/Middle School, currently serves approximately 900 students from the southern portion of Guam (school year 2003-04). The school began operations in the 1997-98 school year in a former Bachelor Quarters and Administrative Office Complex constructed in the 1960's. Additional buildings have been constructed to provide a gymnasium, cafeteria/music building, and kindergarten classroom facility. Similar to the Guam High School, the classrooms at the school are undersized. Electrical, air conditioning, and other utility deficiencies add to the difficulty of efficiently and effectively educating students. Additionally, the school buildings have sustained significant damage from an earthquake that occurred in 2001. The location of the existing schools is shown on Figure 1.

### **1.3 Scope of this Environmental Assessment**

This Environmental Assessment (EA) is intended to meet the requirements of the National Environmental Policy Act (NEPA), United States Code (USC) title 42, sections 4321 to 4370f (42 USC § 4321, et seq.). It addresses all foreseeable environmental impacts of the action. Chapter 2 describes the Proposed Action and alternatives with regard to the construction of the two schools. Chapter 3 discusses the affected resource areas. Chapter 4 focuses on the direct, indirect and cumulative environmental impacts of the Proposed Action and alternatives, as well as appropriate measures to address any potential adverse impacts.

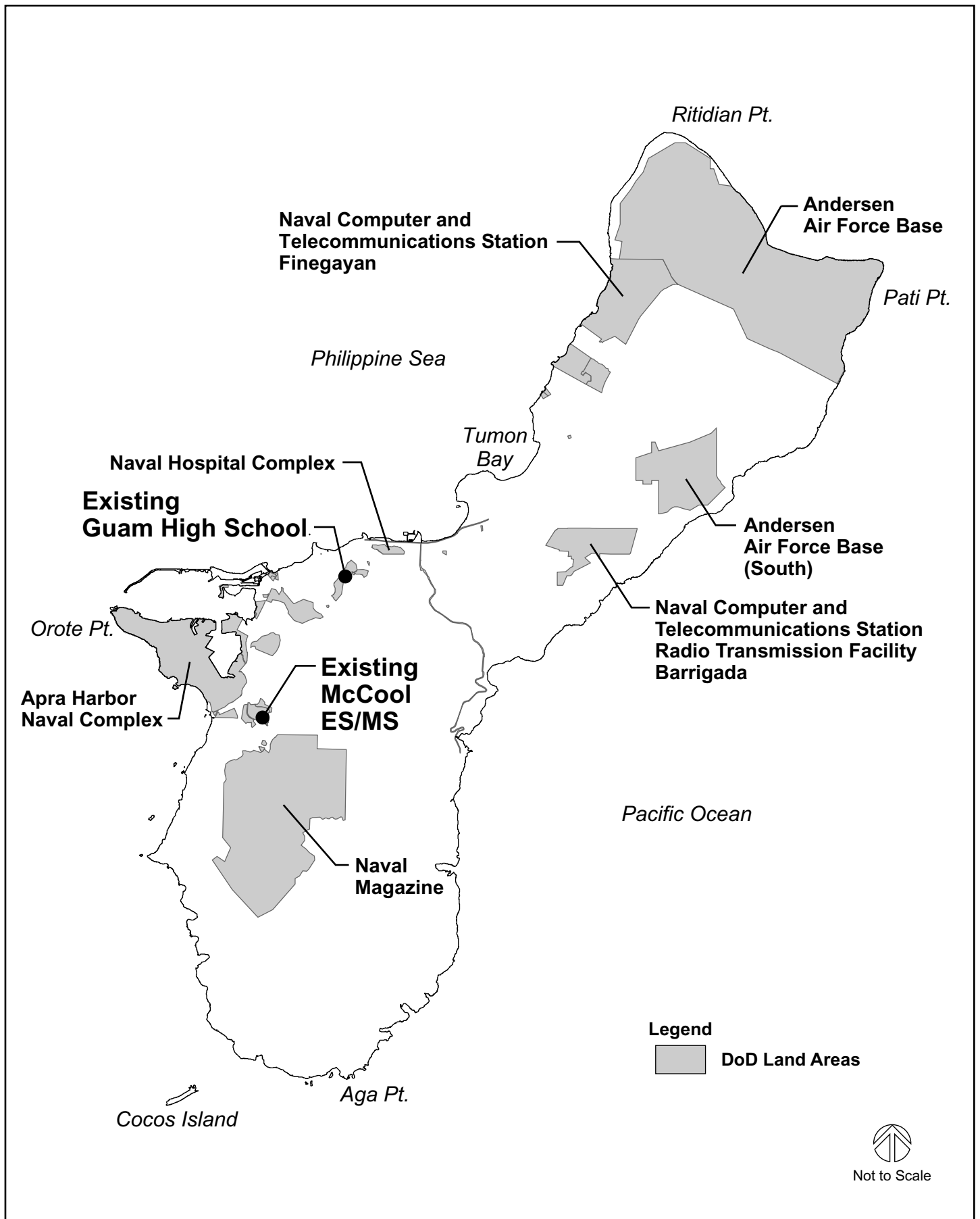
The following is a discussion of the major statutes and permitting requirements that may be relevant to implementing the Proposed Action or alternatives.

#### **1.3.1 National Environmental Policy Act**

This Environmental Assessment (EA) was prepared in compliance with NEPA, as implemented by Council of Environmental Quality (CEQ) regulations as provided by Code of Federal Regulations (CFR) title 40, Parts 1500 to 1508 (40 CFR 1500, et seq.), the Office of the Chief of Naval Operations Instruction (OPNAVINST) 5090.1B, Change-4, Environmental and Natural Resources Programs Manual of June 4, 2003, and the Department of Navy Procedures for Implementing NEPA (32 CFR 775). This EA analyzes the potential impacts of the Proposed Action and alternatives, and it is intended to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a Finding of No Significant Impact (FONSI).

#### **1.3.2 Section 106, National Historic Preservation Act**

The National Historic Preservation Act (NHPA) of 1966 (as amended) (16 USC §470) was passed by Congress to recognize the nation's historic heritage and to establish a national policy for the preservation of historic properties. The Act established the National Register of Historic Places (NRHP). Section 106 of the NHPA requires Federal agencies to take into account the effects of undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Section 106 process, as defined in 36 CFR 800,



**Existing DoDEA Guam High School & McCool ES/MS Locations**

**Figure 1**

EA Construction of Guam High School & McCool ES/MS  
Guam

provides for the identification and evaluation of historic properties for determining the effects of undertakings on such properties, and for developing ways to resolve adverse effects in consultation with consulting parties.

### **1.3.3 Section 402, National Pollutant Discharge Elimination System**

Discharge of pollutants from point sources into surface waters of the U.S. is regulated under the National Pollutant Discharge Elimination System (NPDES) program pursuant to Section 402 of the Clean Water Act. The Guam Environmental Protection Agency (GEPA) administers the NPDES program, and reviews and certifies the 401 WQC permit for compliance with all local regulations and policies and in accordance with the Guam Water Quality Standards. GEPA section 401 Water Quality Certification (401 WQC) identifies that construction of a proposed project will be conducted in a manner consistent with the Guam Water Quality Standards.

### **1.3.4 Coastal Zone Management Act**

The purpose of the Coastal Zone Management Act (CZMA) is to encourage states and territories to manage and conserve coastal areas as a unique, irreplaceable resource. The CZMA states that land subject solely to the discretion of the Federal government, such as Federally owned or leased property is excluded from the territory's coastal zone. However, Federal activities that directly affect the coastal zone are to be conducted in a manner consistent with the State or Territory's CZM program to the maximum extent practicable. The Navy and other Federal agencies must determine if a proposed action is reasonably likely to directly or indirectly (cumulatively or secondarily) affect any land or water use or natural resource within that coastal zone. A consistency review should result in one of the following actions: preparation of a Consistency Determination; preparation of a Negative Determination; or a determination that no further action is necessary. A Consistency Determination must be submitted to each affected coastal State or Territory when an action may have a reasonably foreseeable effect(s) on any coastal use or resource.

### **1.3.5 Guam Sewer Construction Permit**

A Sewer Construction Permit is required for all sewer related projects to include systems lateral extensions, lift stations, force mains, wastewater holding facilities, treatment works, and new wastewater systems. This permit is usually issued to the Air Force or Navy as the main purveyor of all wastewater systems in Guam. Permit issuance involves the prior review and approval of engineering and design plans by GEPA for compliance with all environmental requirements. As part of the building construction process, GEPA issues either a public Sewer Connection Permit through the Guam Waterworks Authority or a separate permit for an Individual Wastewater Disposal System (IWDS) for site septic tank/leaching field systems.

### **1.3.6 GEPA Clean Air Act Permit Modification**

The GEPA Air Pollution Control Program is responsible for the implementation and enforcement of Guam's Air Pollution Control Standards and Regulations, promulgated under the authority of Chapter 49, Title 10 of the Guam Code Annotated (GCA), also known as the Air Pollution Control Act (Public Law 10-74) and appropriate Guam requirements under the Federal Clean Air Act guidelines supporting these mandates.

Air pollution permits are issued according to the dry weight pollutant per year anticipated to be emitted from a facility classified as either a minor or major source.

Program activities include, among others, a permitting system for construction and operation of major and minor stationary air pollution sources and enforcement of Guam's Air Pollution Standards and Regulations. The program is also responsible for overseeing asbestos demolition, renovation, and disposal activities under 40 CFR Part 61, Subpart M and the Asbestos Hazard Emergency Response Act.

### **1.3.7 Guam Department of Public Works Clearing and Grading Permit**

GEPA has promulgated the Guam Soil Erosion and Sedimentation Control Regulations (Guam Administrative Rules [GAR] Title 22, Chapter 45) under the authority of 10 GCA 47, §§ 47101-47112, "Water Pollution Control Act." These regulations require a clearing and grading permit unless otherwise exempt under 22 GAR § 45101(5). In general, these regulations apply to all clearing, grading, filling, excavating, or other earth-moving operations on Guam, and include those activities performed by Federal agencies. As a prerequisite, an Erosion Control Plan must be approved by GEPA prior to issuance of the Guam Department of Public Works Clearing and Grading Permit.

## 2.0 PROPOSED ACTION AND ALTERNATIVES

### 2.1 Introduction

This chapter presents a discussion of the Proposed Action, alternatives, and the environmental consequences of each. The following alternatives were considered:

- Proposed Action;
- Construction of schools at alternate sites in Barrigada and the Apra Harbor Naval Complex; and
- No Action.

Alternatives that were also considered but eliminated from further evaluation are presented and discussed in this chapter. Figure 2 shows locations of the existing school sites, the Proposed Action, and the alternate sites.

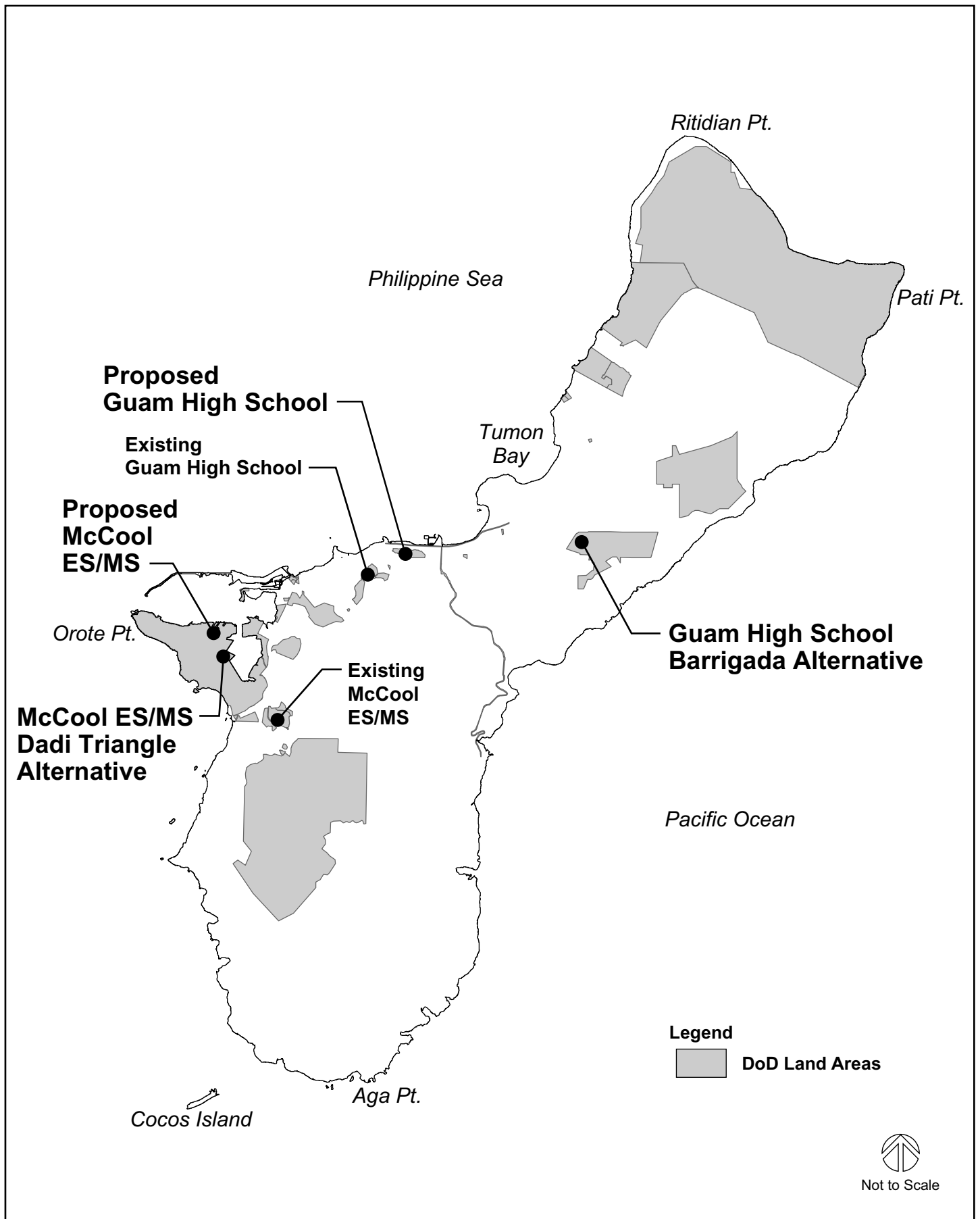
### 2.2 Proposed Action

The Proposed Action includes construction of a new Guam High School at the Naval Hospital Complex and a new McCool ES/MS at the former Sumay Housing site within the Apra Harbor Naval Complex. A comparison of the environmental impacts of the Proposed Action and other alternatives is presented at the end of this chapter in Table 1 and discussed in further detail in Chapter 4.

**Guam High School.** The new Guam High School would be located within a 23-acre (9.3 hectare [ha]) site at the Naval Hospital Complex. Figure 3 shows the proposed project area and nearby landmarks, including existing roadways, adjacent housing, and existing and planned medical facilities.

The Proposed Action would include the following elements as described below:

- A two-story school building designed to accommodate approximately 500 high school students;
- Classrooms, a school administration/office cluster, computer laboratories, an information center/library, athletic facilities (gymnasium, track, and athletic fields), a multipurpose room/cafeteria, and other support rooms;
- A stand-by electrical generator;
- Special design features to comply with mandatory anti-terrorism/force protection (AT/FP) requirements, including a minimum building stand-off distance from roads, the hospital helipad, and vehicle parking;
- Safety fencing to ensure student, staff, and visitor safety in the vicinity of the hospital helipad, the athletic fields, and related High School grounds as appropriate;
- School bus safety ingress, egress, and turnaround lanes from the High School to Gate 2;
- Adequate provisions for supporting parking spaces to accommodate future projected student, staff, and visitor needs, as well as overflow parking for High School special events and athletic competitions;



**Proposed Action and Reasonable Alternatives Locations**

**Figure 2**

EA Construction of Guam High School & McCool ES/MS  
Guam

- Space for future classroom building expansion for the school to accommodate up to 650 students; and
- Demolition of twenty family housing units.

The project includes space for the DoDEA/DDESS District Superintendent Office (DSO) (currently housed in Building 100 within the Naval Hospital Complex).

Access to the site would be via the Naval Hospital Complex Main Gate (Gate 1) off of Route 7. However, during construction, access to the site from Rt. 7 would be via Gate 2, located east of Gate 1, which would be staffed by contract gate guards. Once the school begins operation, Gate 2 would be staffed by COMNAVMARIANAS Security during morning and afternoon hours coinciding with peak High School arrival and departure periods, and during special events as coordinated by the DoDEA DSO. Off-peak High School traffic would be accommodated at Gate 1. The locations of both gates are shown on Figure 3. The school facility would be located within the northern portion of the Naval Hospital Complex.

The Proposed Action incorporates the upgrade and installation of utilities to include potable water, power, sewer, telephone, local area network (LAN), cable television (CATV), and sitework for grading and drainage.

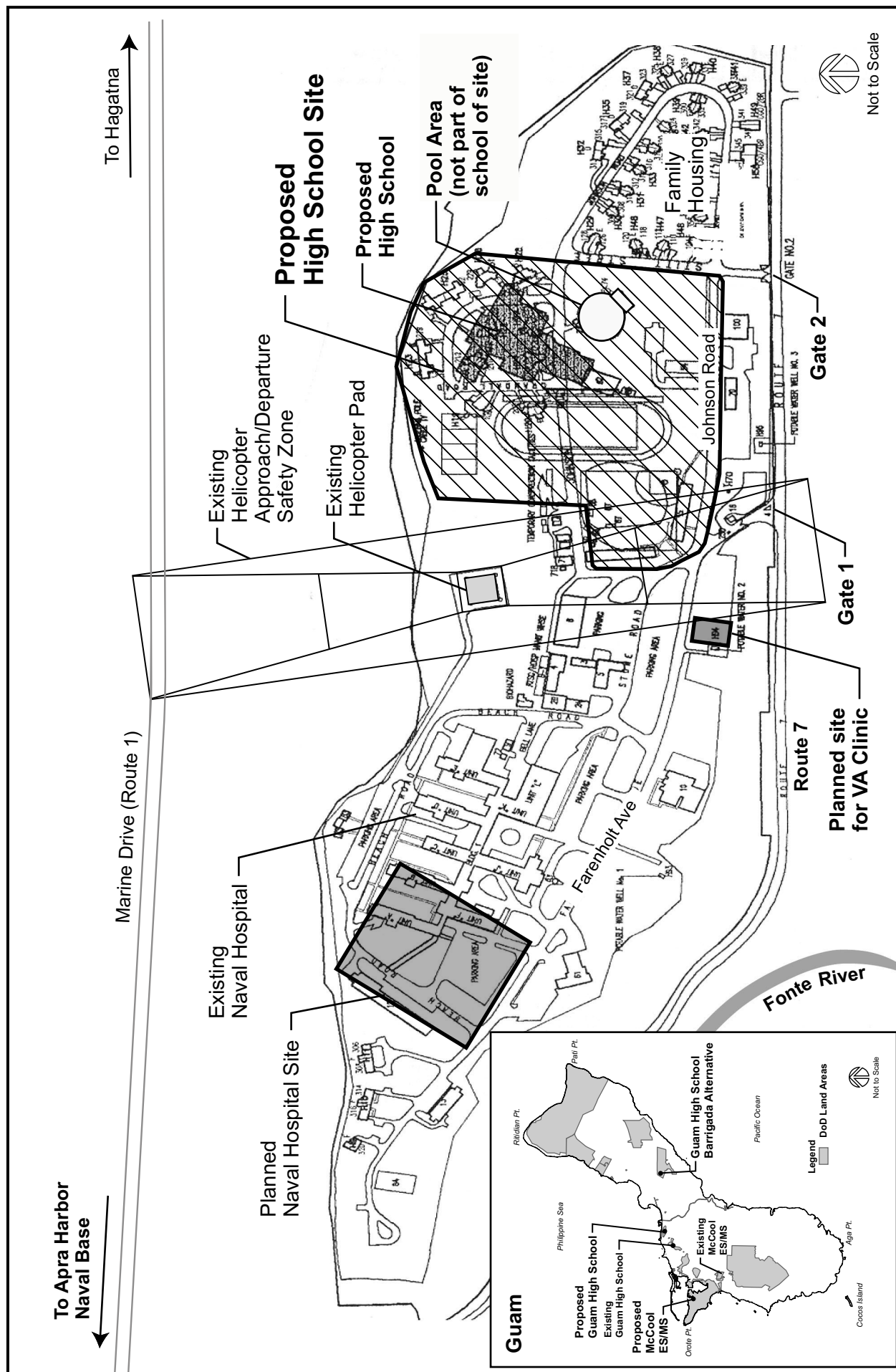
**McCool ES/MS.** The new McCool ES/MS would be located within the Apra Harbor Naval Complex in the former Sumay Family Housing Area. Figure 4 shows the project area and nearby landmarks, including existing roadways and adjacent housing.

The Proposed Action would include the following elements as described below:

- A two-story school building designed to accommodate approximately 900 elementary and middle school students;
- Separate elementary and middle school educational clusters, combined administrative offices and primary use areas, playgrounds, athletic facilities (gymnasium and athletic fields), multi-purpose room/cafeteria, and other support rooms;
- A standby electrical generator;
- Special design features to comply with mandatory AT/FP requirements, including a minimum building stand-off distance from roads and vehicle parking; and
- Space for future classroom building expansion for the school to accommodate up to 1,100 students.

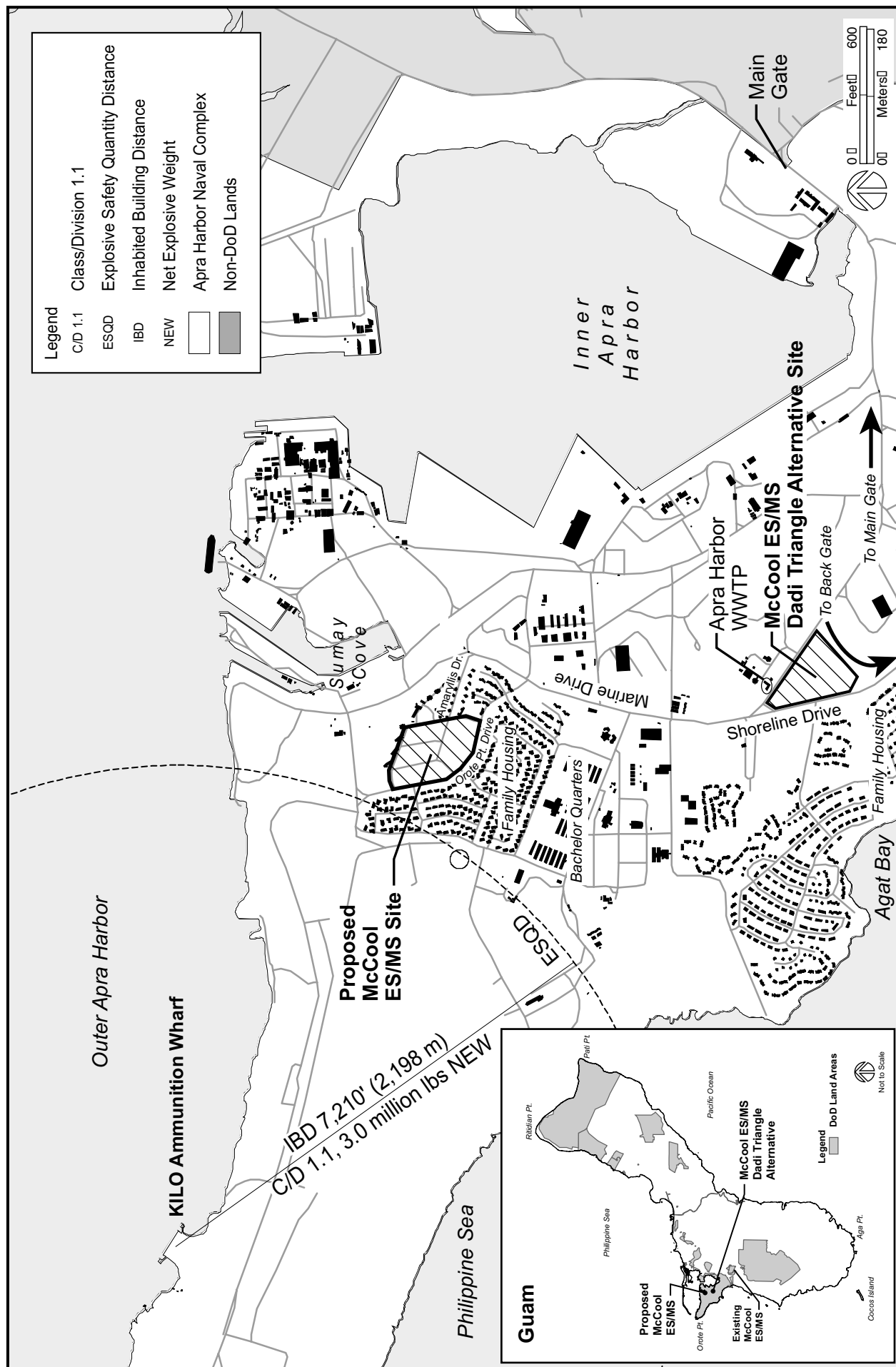
The Proposed Action would occupy approximately 36.7 acres (14.9 ha) of land adjacent to existing Navy family housing. A WWII Marine Barracks Monument located on the proposed site would be incorporated into the design of the new school campus.

The Proposed Action incorporates the upgrade and installation of new utilities to include potable water, power, sewer, telephone, LAN, CATV, and sitework for grading and drainage.



**Guam High School Naval Hospital Location**  
 EA Construction of Guam High School & McCool ES/MS  
 Guam

**Figure 3**



**Figure 4**  
**McCool ES/MS and Dadi Triangle ES/MS Apra Harbor Locations**  
 EA Construction of Guam High School & McCool ES/MS  
 Guam

## 2.3 Alternatives

This section describes alternatives to the Proposed Action, including reasonable alternatives, the No Action Alternative, and alternatives that were considered but eliminated from further evaluation.

### 2.3.1 Reasonable Alternatives

The following reasonable alternatives were considered viable and evaluated in this EA:

- **Guam High School - Barrigada Alternative:** Construction of a new Guam High School within the Naval Computer and Telecommunications Station (NCTS) Radio Transmission Facility (RTF), Barrigada.
- **McCool ES/MS - Dadi Triangle Alternative:** Construction of a new McCool ES/MS at a site known as Dadi Triangle, located within the Apra Harbor Naval Complex.

The Barrigada and Dadi Triangle reasonable alternatives are described below. Each was assessed based on a number of criteria including parcel size, location, adjacent land uses, existing infrastructure, traffic impacts, AT/FP requirements, and total development costs.

**Guam High School – Barrigada Alternative.** The Reasonable Alternative for the construction of the new Guam High School was identified and evaluated for a site located within the NCTS RTF, Barrigada, as shown on Figure 5. The 50-acre (20.2-ha) site was evaluated because it is centrally located between both Navy and Air Force Base (AFB) Installations, though the location is not adjacent to or near existing DoD family housing neighborhoods and is not located within an existing DoD secured perimeter. Located adjacent to the NCTS RTF antenna farm, the site has not been previously developed and is currently overgrown with trees and bushes. The site meets the space requirements for constructing new school facilities, has suitable topography and soil conditions for constructing administrative, classroom, and playfields, and has available utilities and convenient linkages between DoD facilities.

**Elementary/Middle School - Dadi Triangle Alternative.** The Reasonable Alternative for the construction of a new McCool ES/MS was identified and evaluated at a 30-acre (12.2-ha) site located within the Apra Harbor Naval Complex known as the Dadi Triangle, as shown on Figure 4. The site is vacant and covered with grass. Necessary utilities are available. The site is located directly across Marine Drive from the Navy's Apra Harbor Wastewater Treatment Plant (WWTP). Marine Drive and Shoreline Drive bound the northwest corner of the site. The site is centrally located to the Apra Harbor Naval Complex family housing areas and close to the installation's recreational area, chapel, child development center, commissary, and Navy Exchange. The site meets the space requirements for constructing new school facilities, and has suitable topography and soil conditions for constructing administrative, classroom, and playfields with convenient linkages between facilities.

### **2.3.2 No Action Alternative**

The No Action Alternative would preserve the status quo. Students at both Guam High School and McCool ES/MS would continue to attend classes in classrooms that do not meet the current DoDEA size requirements. The No Action Alternative would leave the Guam High School and McCool ES/MS with aging facilities lacking the facilities to accommodate the desired school curriculum. Students would continue to attend classes in undersized and poorly configured classrooms and would continue to operate with on-site facilities that are not adequate to support desired educational and extra-curricular programs.

The No Action Alternative would not achieve the purpose and need for the project and was carried forward in the analysis as a benchmark to compare the magnitude of environmental effects of the alternatives including the Proposed Action.

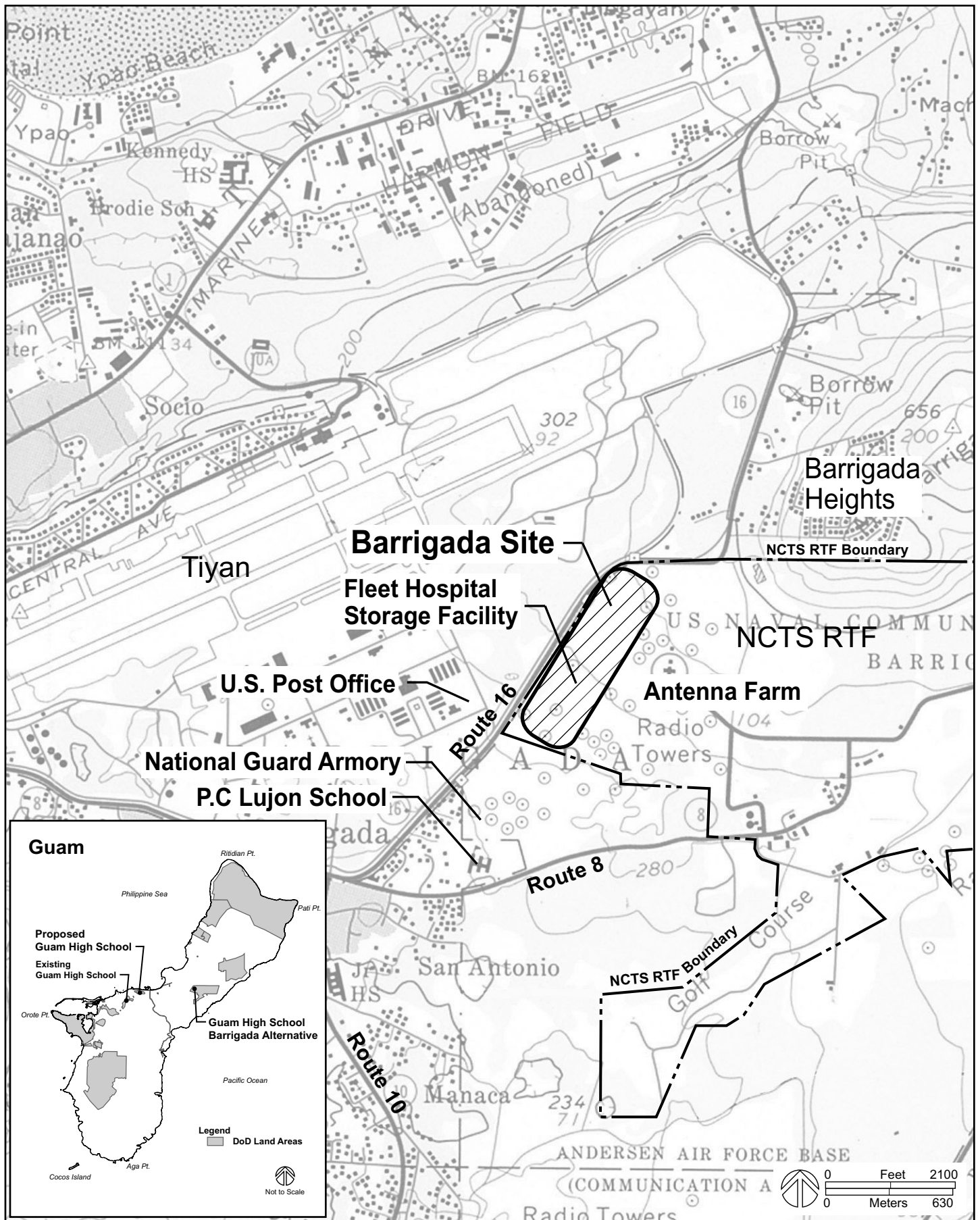
### **2.3.3 Alternatives Considered and Eliminated from Further Evaluation**

The following alternatives for both the Guam High School and McCool ES/MS were examined but were dismissed as not viable and were not further analyzed in this EA.

- **Renovation and Repair of Existing Facilities.** Renovation and repair would improve portions of the existing Guam High School, but would not be sufficient to bring the school up to DoDEA educational facility standards. Construction of new facilities would still be required. For example, utilization of open space around the existing Guam High School is limited due to excessive ground slope, and the area around the school facility is archaeologically sensitive, requiring extensive development mitigation measures. Similarly, the existing McCool ES/MS site does not have adequate space for school playfield and parking requirements. For these reasons, renovation and repair of the existing facilities is not considered a viable alternative for the Guam High School or McCool ES/MS.
- **New Construction at Existing Sites.** Similar to renovation and repair of existing sites, new construction would improve portions of the existing schools, but the sites are not sufficient to bring the schools up to DoDEA educational facility standards. New construction at Nimitz Hill also presents difficulties with respect to AT/FP requirements. Utilization of open space around the school is limited due to excessive ground slope, and construction would likely impact archaeologically sensitive areas. New construction at Apra Heights would fail to resolve existing playfield inadequacies. New construction at the existing sites would also require identifying and coordinating fully functional temporary school facilities while the new construction was completed. For these reasons, new construction at both the Nimitz Hill site and Apra Heights site was eliminated as a viable alternative.

## **2.4 Environmental Effects of the Proposed Action and Alternatives**

Table 1 summarizes the environmental effects of the Proposed Action and alternatives for both Guam High School and McCool ES/MS. The information in the table is summarized from Chapter 4, Environmental Consequences.



**Guam High School Barrigada Alternative Location**

EA Construction of Guam High School & McCool ES/MS

Guam

Table 1: Summary of Environmental Effects of the Proposed Action and Alternatives

Guam High School			
Resource Issue	Proposed Action ( <i>Naval Hospital</i> )	Reasonable Alternative ( <i>Barrigada</i> )	No Action Alternative
Topography, Soils, and Drainage	No significant impacts. Short-term impacts associated with grading and construction activities.	Same as Proposed Action.	No impact.
Flora & Fauna	No significant impacts. Site does not support threatened or endangered plants or animals.	Same as Proposed Action.	No impact.
Cultural Resources	No effect.	Same as Proposed Action.	No effect.
Air Quality and Noise	No significant impact.	Same as Proposed Action.	No impact.
Hazardous / Regulated Materials	No significant impact. Possible encounter with lead-based paint, asbestos, and/or chlordane. Any hazardous/regulated materials encountered will be handled in accordance with local and Federal regulations.	Possible encounter with asbestos.	No impact.
Ground and Surface Water Resources	No significant impact.	Same as Proposed Action.	No impact.
Visual Resources	No significant impact.	Same as Proposed Action.	No impact.
Public Infrastructure and Services	No significant impact.	Same as Proposed Action.	No impact.
Land Use Compatibility	No significant impact.	Potential impact from adjacent NCTS RTF Electromagnetic Fields (EMF).	No impact.
Socioeconomic Factors	Short- and long-term beneficial impacts associated with construction period employment opportunities and future educational employment opportunities associated with the future expansion of the schools. These could include construction-related jobs, education related jobs connected with increased staffing as a result of a future expansion of the school facilities, and facility maintenance related jobs.	Same as Proposed Action.	Students would continue to attend classes in undersized classrooms and would continue to operate with on-site playfields that are not adequate to support desired educational and extra-curricular programs.
Traffic	No significant impact. Minor short-term construction period impacts. Minor operational-period impacts with Gate 2 utilized for school related traffic entry and exit during morning and afternoon periods. No significant impact on emergency vehicle ingress/egress identified.	Similar to Proposed Action, with reasonably foreseeable offsite improvements such as traffic signalization on Route 16 school access driveway used to address impact.	No impact.

Table 1. Summary of Environmental Effects of the Proposed Action and Alternatives (cont.)

McCool ES/MS			
Resource Issue	Proposed Action ( <i>Naval Hospital</i> )	Reasonable Alternative ( <i>Barrigada</i> )	No Action Alternative
Topography, Soils, and Drainage	Short term impacts associated with grading and construction activities.	Same as Proposed Action.	No impact.
Flora & Fauna	No significant impact. Site supports does not support threatened or endangered plants or animals.	Same as Proposed Action.	No impact.
Cultural Resources	Potential adverse effect. The archaeological monitoring plan approved by GHPO will be implemented during ground disturbing activities to ensure that discovered cultural resources will not be adversely affected.	No effect.	No effect.
Air Quality and Noise	No significant impact.	Same as Proposed Action.	No impact.
Hazardous / Regulated Materials	No significant impact. Possible encounter with asbestos. Any hazardous/regulated materials encountered will be handled in accordance with local and Federal regulations.	Same as Proposed Action. Possible further PCB remediation required.	No impact.
Ground and Surface Water Resources	No significant impact.	No significant impact.	No impact.
Visual Resources	No significant impact.	Same as Proposed Action.	No impact.
Public Infrastructure and Services	No significant impact.	Same as Proposed Action.	No impact.
Land Use Compatibility	No significant impact.	Potential for odors generated by nearby WWTP.	No impact.
Socioeconomic Factors	Short- and long-term beneficial impacts associated with construction period employment opportunities and future educational employment opportunities associated with the future expansion of the schools. These could include construction-related jobs, education related jobs connected with increased staffing as a result of a future expansion of the school facilities, and facility maintenance related jobs.	Same as Proposed Action.	Students would continue to attend classes in undersized and poorly configured classrooms and would continue to operate with on-site playfields that are not adequate to support desired educational and extra-curricular programs.
Traffic	No significant impact. Minor short-term construction period impacts. Minor operational-period impacts without changes to existing roadways or traffic patterns.	Same as Proposed Action.  Reasonably foreseeable offsite improvements at school entrance from Marine Drive.	No impact.

## 3.0 AFFECTED ENVIRONMENT

### 3.1 Overview

This chapter describes the environmental setting and baseline conditions of the environmental resources affected by the Proposed Action and alternatives if they were to be implemented.

The proposed Guam High School project site is located within the Naval Hospital Complex in Agaña Heights on an approximately 23-acre (9.3-ha) site. As shown on Figure 3, the site is located south of Hagåtña and adjacent to existing Navy family housing and administrative facilities. Access to the site would be via the Naval Hospital Gate 1 off of Route 7. A second access gate to the site would be opened for school related traffic during the morning and afternoon hours. The second access would be at Gate 2, which is located east of Gate 1 off of Route 7.

The McCool ES/MS project site is located within the Apra Harbor Naval Complex at the former Sumay family housing area on an approximately 36.7-acre (14.9-ha) site. As shown on Figure 6, the site is adjacent to existing Navy family housing, a dental services clinic, and other administrative facilities. A WWII Marine Barracks Monument located on the proposed site will be retained and incorporated into the school campus. Bounding roads include Orote Point Drive on the west (the main feeder road for adjacent family housing), Bougainvillea and Hibiscus Streets on the east and north (respectively), which provide access to the nearby dental clinic and other facilities, and Amaryllis Avenue, which provides direct site access from Marine Drive.

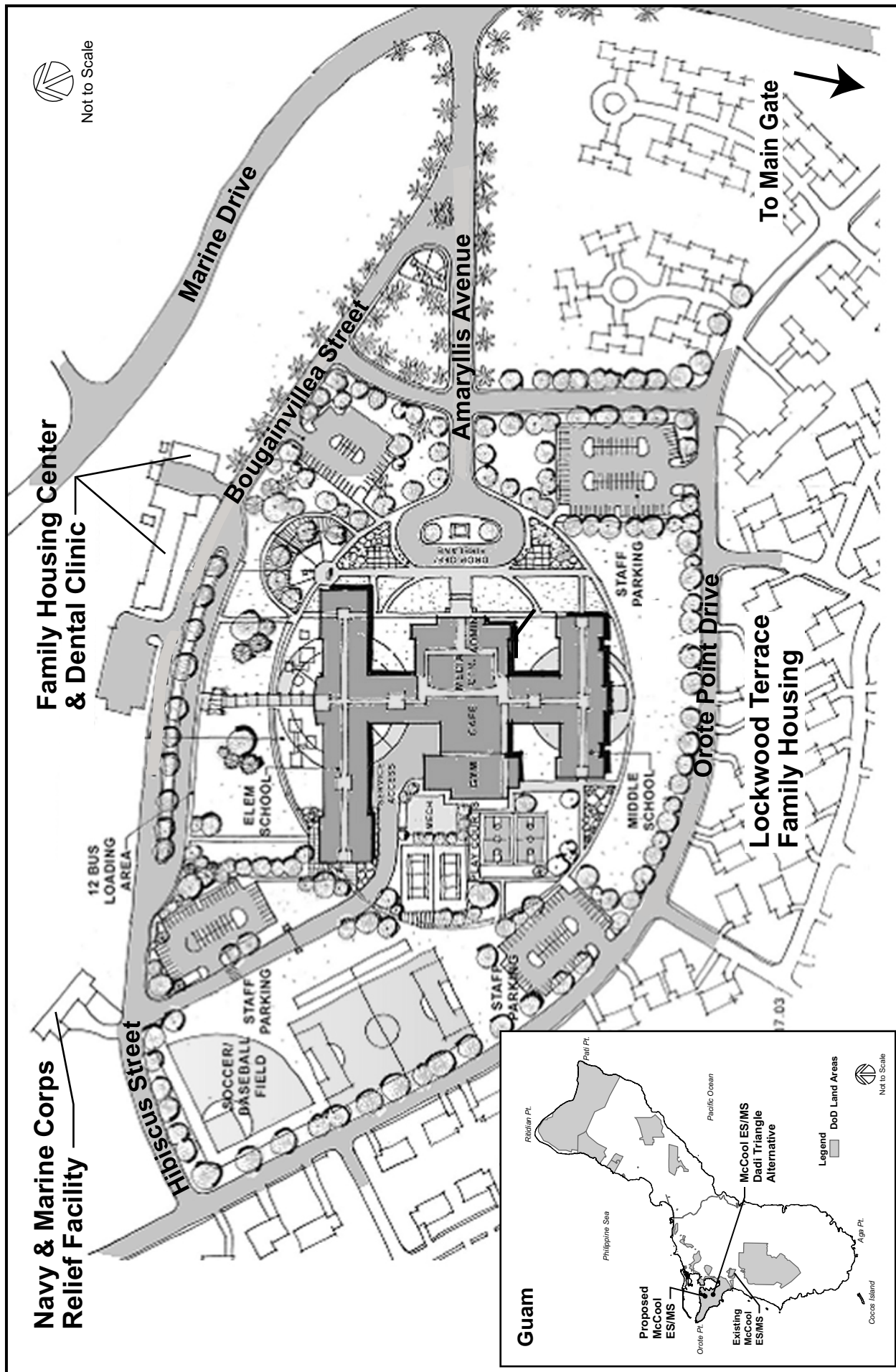
The Guam High School alternative site is located within the NCTS RTF in Barrigada on an approximately 50-acre (20.1-ha) undeveloped site. As shown on Figure 5, the site is located on a portion of the installation about one quarter mile south of Tiyan on Route 16, south of Barrigada Heights and northeast of the National Guard Armory and P.C. Lujon School. The site is adjacent to the Navy Fleet Hospital Storage Facility and the NCTS RTF antenna farm.

The McCool ES/MS Dadi Triangle alternative site is located within the Apra Harbor Naval Complex between Marine Drive and Shoreline Drive on an approximately 30-acre (12.2-ha) site. As shown on Figure 4, it is adjacent to a Public Works Center facility and storage yard, and approximately 1,200 ft (366 m) across Marine Drive from the Navy's Apra Harbor WWTP.

#### 3.1.1 Topography and Drainage.

##### 3.1.1.1 Proposed Action

**Guam High School.** The proposed Guam High School site is located on land currently occupied by family housing units, a swimming pool, softball field and bachelor quarters. The site is relatively flat, and is bounded by a steep cliff line to the north that drops



**McCool ES/MS Sumay Site**  
 EA Construction of Guam High School & McCool ES/MS  
 Guam

**Figure 6**

approximately 150 feet (45.7 m) to public and private property along Marine Drive (Route 1). The terrain generally slopes from north to south over most of the proposed project site, with stormwater runoff captured in a concrete lined ditch running along Johnson Road and emptying into the Fonte River.

**McCool ES/MS.** The proposed McCool ES/MS site is located on land previously occupied by family housing units. The site is relatively flat, and is adjacent to a new family housing area. The terrain generally slopes from northwest to southeast over most of the proposed project site, with stormwater runoff directed to grass-lined swales.

### **3.1.1.2 Reasonable Alternatives**

**Guam High School - Barrigada Alternative.** The Barrigada site is located on previously undeveloped property. The site has a mild to moderate slope. The terrain generally slopes from northeast to southwest, with stormwater runoff that drains via sheet flow to Route 16 and to adjacent low-lying areas to the south.

**McCool ES/MS - Dadi Triangle Alternative.** The Dadi Triangle site is located on land previously developed for industrial use. The site has a moderate south-to-north downward slope. Stormwater runoff drains from the site via sheet flow.

### **3.1.2 Flora and Fauna**

With the exception of the Guam High School Barrigada Alternative site, there are no published reports that specifically address the biological resources of the project sites for the Proposed Action and alternatives. Biological resources at the Barrigada Alternative site were addressed in a Natural Resources Survey completed in 1989 (Bio Systems Analysis, Inc., 1989). The survey identified no species or habitats of concern at Barrigada, and described the area as overgrown with weeds and scattered shrubs. The site has remained relatively unchanged since the completion of the Natural Resources Survey. All other project sites have been previously developed, with vegetation consisting primarily of mowed grass, Coconut Palm, Hibiscus, and Bougainvillea growing between existing pavement and sidewalks. No species of plants or animals that are listed or proposed for listing as threatened or endangered under ESA have been observed or are expected to occur on any of the sites. There are no wetlands, perennial streams, or sensitive riparian areas within any of the sites.

### **3.1.3 Cultural Resources**

#### **3.1.3.1 Guam History**

Studies conducted by a number of archaeologists have set the estimated date for human arrival to Guam between 3000 and 3500 B.P. (Spoehr 1957; Kurashina and Clayshulte 1983; Athens 1986; Bonhomme and Craib 1987; Moore et al. 1992; Butler 1993; Craib 1993). Population levels during this first so-called Early Period of settlement were low and dispersed, leaving behind minimal cultural material. Archaeological records from later periods document the presence of shallow, open pottery bowls and pans (Transitional Period, 2000-800 B.P.) and latte, fish gorges made of shell, and other materials including basalt adzes and mortars (Latte Period, 800-250 B.P.).

The descendants of the first settlers lived in relative isolation in the western Pacific for about 3,000 years, until the arrival of Magellan and a small Spanish fleet in 1521. The arrival of this fleet was the first contact between the western world and Pacific Islanders.

Spain used the Marianas as a stop along their trade-route to Manila. Under Spanish occupation the indigenous Chamorro culture changed and population declined. As a result of the U.S. victory in the Spanish-American War of 1898, Guam was ceded to the United States by the Treaty of Paris, and subsequently became a remote coaling outpost for the U.S. Navy. Hagåtña remained the principal settlement on the island during this time, and Sumay was one of the primary locations chosen for military installations. The strategic position of Guam resulted in its use as a U.S. coaling port at the beginning of this century, and subsequently as a port-of-call for Pan American Airlines' first trans-Pacific air route. By 1941, Sumay had become the commercial, communications, and transportation center for Guam.

Japan invaded Guam on December 10, 1941, converting the island into their own military outpost held by approximately 400 naval militia men (Yoklavich and Craib, 1997). In the summer of 1944, after a three week period of naval and air bombardment, the U.S. recaptured the island. The island went on to play an important role in the Allied push towards Japan during the later stages of WWII, becoming a major staging area for military operations in the Pacific. In 1949, an executive order transferred the government of Guam from the Navy to the Department of the Interior. With the signing of the Organic Act in 1950, residents of Guam became U.S. citizens (with certain qualifications), and Guam was established as an unincorporated Territory of the United States.

Cultural and historic resources on Guam are related to the above-mentioned events and may include village remains, latte stones, pottery, military possessions, human remains and structures.

The NHPA defines *historic property* as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register..." (16 USC 470w). For the purposes of this EA, the terms "historic properties" and "cultural resources" are used synonymously.

### 3.1.3.2 Proposed Action

**Guam High School.** Hagåtña has historically been one of the most heavily populated areas of Guam. Consequently there are many areas of historical interest near the Naval Hospital, most of which date to the period of Spanish influence from 1521 to 1898 or the subsequent first American period from 1898 to 1941. A survey of these sites conducted by the government of Guam led to a determination of three of them for listing in the NRHP as well as the Guam Register. The Proposed Action does not fall within range of any of the listed sites.

**McCool ES/MS.** In the early 1920s the United States Marine Corps established a seaplane base at Sumay with the arrival of a Marine Flight Squadron comprised of 10 pilots and 90 enlisted men. At the same time, the headquarters of the Marine Barracks and most of the troops were relocated from Hagåtña to Sumay, and permanent barracks were built to house them. Both Scouting Squadron One and the Marine Barracks were located on a bluff overlooking Sumay and Apra Harbor, with Scouting Squadron One

situated seaward of the barracks. The base at Sumay was in operation until 1931 when the U.S. decided to demilitarize Guam, restricting naval activities on the island to the provision of services for Navy ships sailing between Hawaii and the Philippines. It was here that the first Japanese bomb fell in 1941, near the commanding officer's office at Marine Barracks (Lauter-Reinman, 1998).

The Marine Barracks Plaque that was installed to honor this site was possibly one of the most famous symbols of Guam's subsequent recapture three years later, and was located within the area of potential effects of the Proposed Action. However, the plaque has since been removed. Marines, who in 1944 recaptured the old Marine Barracks, found the old plaque in the rubble and proudly displayed their trophy for photographers. The plaque was later relocated to Building 15A on a concrete upright until the Marines removed it from the island. A stone column constructed at the site of the former Marine Barracks after the end of the war contains a plaque similar to the original, and reads "Semper Fi—Site of Old Marine Barracks, Oct. 1921 – Dec. 1941, Guam." A second marker placed below it states, "In memory of the Marines who gave their lives to liberate the island of Guam on July 21, 1944." This monument was assigned the Guam site inventory number, 66-03-1036, but it was determined that it was not eligible for listing in the NRHP. As a monument of commemorative value, it does not meet the NRHP criteria of eligibility. It is currently located at the corner of Hibiscus and Mimosa Street, in Lockwood Housing (Lauter-Reinman, 1997).

Along the northeast perimeter of the project area is the Japanese Sumay Caves Area, located near the old Sumay Cemetery. A Japanese delegation in charge of locating burials in 1975 was unable to find any remains at this site. However, in 1975, human remains of two individuals were reported by hikers in the area. It is believed that the Japanese put the sick and wounded in caves in the vicinity during the United States' recapture of Guam in 1944. When the Japanese could not prevail and supplies in the caves had run out, doctors are said to have euthanized these individuals by injection. The bodies were then apparently buried.

The caves were evidently sealed after the recapture of Guam, and while some have remained sealed, others have opened up due to weathering and erosion. The area has also undergone bulldozing and modification from road widening activities along Marine Drive. As a result, some of the caves are visible on the west side of Marine Drive below the Dental Clinic. Other caves are believed to exist on the steep terrain on the east side of the road. The caves are said to show signs of modification for a defense system, while artifacts found there attest to their use during WWII. A Chamorro informant recounted how he helped to dig a deep hole on the side of the hill next to the Sumay Cemetery, which the Japanese then used as an underground radio communication center. It has not been possible to determine the eligibility of this site for the National Register due to insufficient data.

A Japanese mass grave site (Site 66-03-1092) is located near the junction of San Luis Road and Orote Point Drive, roughly 400 feet to the northwest of the project area, in what is now Lockwood Housing at Waterfront Annex. Hundreds of Japanese were killed in this area during WWII, during the battle for Orote Peninsula. Due to the speed of decomposition in the tropical environment, it was necessary to bury the dead as soon as possible. This mass burial was performed in extreme haste and no records have been found disclosing the exact extent or locations of the burials. Former Marines recall the hillside being covered with bodies, and the necessity of burial being so pressing that

burials were dug no deeper than a bulldozer scoop. One eyewitness, Jesus C. Lizama, estimated the number of dead to be over 200 and the extent of the burial area to be approximately 300 square feet. In 1953, the Japanese Self Defense Force erected a boulder here to commemorate the site and the Japanese that died in the battle. The inscription on the boulder reads in Japanese, "Marker of Japanese war dead erected 1953 by the Japanese." The boulder was relocated to the South Pacific Memorial Park in Yigo in 1972, at the request of the Japanese Consulate. The site is not eligible for listing in the National Register of Historic Places.

Sewer line trenching conducted in March 2004 at the corner of Orote Point Drive and San Luis Road, adjacent to the mass burial site, encountered a fill layer containing fragments of human bones in good condition. Several pre-WWII items were observed, such as shrapnel, broken glass, bits of wood, a plastic toothbrush fragment, a plastic comb fragment, and a small piece of blue-on-white porcelain. Some possible food debris consisting of three whole and two fragmentary *Anadara antiquata* shells were also discovered. No prehistoric artifacts were found. It is possible the soil used for this fill originated from the Japanese excavations to recover and repatriate remains from the mass burial site in 1975.

### 3.1.3.3 Reasonable Alternatives

**Guam High School - Barrigada Alternative.** The southwestern end of the Barrigada site location overlaps with Historic Site 66-04-1059, where the Battle of Barrigada took place in 1944. This battle marked one of the final stages of resistance by the Japanese following the U.S. invasion on July 30 of that year. However, the lack of remains and other cultural materials in the area, in addition to the extensive disturbances due to construction, have altered the historic integrity of the site. Therefore, the Battle of Barrigada site is not considered eligible for listing in the National Register (Yoklavich and Craib 1997).

**McCool ES/MS - Dadi Triangle Alternative.** No cultural resources have been documented at this site.

### 3.1.4 Air Quality and Noise

According to the Guam Energy Office, the Territory of Guam is generally free from serious air pollution. Despite the high concentration of human activity in the Hagåtña-Tamuning metropolitan area (in which the Proposed Action and alternatives are located), favorable meteorological conditions, in particular the nearly constant trade winds, have prevented the build-up of any significant pollutants (Guam Energy Office, n.d.). However, action levels of radon, a naturally occurring, odorless gas have been detected in buildings near the project site (Danilo D. Lopez Associates, Inc., 2004).

Ambient noise levels within the Proposed Action and alternatives project sites are relatively low, and predominantly a function of the amount of traffic on adjacent roadways and any noise-generating activities that might be occurring in the surrounding areas, including family housing, recreation activities, military training events, and aircraft operations.

### **3.1.5 Hazardous and Regulated Materials.**

#### **3.1.5.1 Proposed Action**

**Guam High School.** Asbestos-containing materials (ACMs), petroleum products and refrigerants, and the presence of lead-based paint (LBP) exist within the proposed Naval Hospital project area. Though not found within the housing units, LBP has been detected in dust and soil samples collected around the housing area, and was found on a basketball court rim (requiring removal in accordance with Occupational Safety and Health Administration (OSHA) lead standards and EPA/GEPA hazardous waste regulations). Floor tiles of family housing units may contain non-friable ACM (D. Lopez Associates, Inc., March 2003). The site also contains electrical transformers filled with mineral oil (i.e., non-polychlorinated biphenyls, or PCB-free) and air conditioning units (containing refrigerants).

Chlordane, widely used as a termite pesticide from the 1940's through 1980's. Though not confirmed, chlordane may be present in the proposed construction sites. If chlordane-contaminated soil is encountered, it will be managed in accordance with all applicable Guam regulations. Efforts would include long-term protection of human health and safety by measures such as using clean cover, asphalt barriers, or other such methods which prevent a barrier to personnel from sub-surface chlordane-contaminated soil.

Treated lumber at the playground located on Crandall Road was collected and analyzed for Toxicity Characteristic Leaching Procedure-arsenic (TCLP-arsenic) (Danilo D. Lopez Associates, Inc., 2004). The laboratory analysis report indicated that the lumber is not a Resource Conservation and Recovery Act (RCRA) regulated hazardous waste.

**McCool ES/MS.** Previously developed areas of the site may contain buried asbestos-cement (AC) water piping that is no longer in service. No other hazardous materials are known to exist at this site.

#### **3.1.5.2 Reasonable Alternatives**

**Guam High School - Barrigada Alternative.** Previously developed areas of the site may contain buried AC water piping that is no longer in service. No other hazardous materials are known to exist at this site.

**McCool ES/MS - Dadi Triangle Alternative.** Previously developed areas of the site may contain buried AC water piping that is no longer in service. Soil in areas within the site has been remediated for PCBs to required levels. No other hazardous materials are known to exist at this site.

### **3.1.6 Ground and Surface Water Resources**

Water quality on Guam is monitored by the GEPA in compliance with existing Federal and local regulations. Guam's ground water is generally free from pollution discharges, and island wide water quality is consistently high. There are no wetlands or perennial streams within the project areas.

The Navy owns the surface and groundwater resources used for potable water at the Naval Hospital Complex and Apra Harbor Naval Complex. The Navy has developed the Almagosa Spring, Bona Spring and Fena Watershed as the primary sources of water for southern Guam, which includes the Proposed Action and reasonable alternative sites within the Apra Harbor Naval Complex and Naval Hospital. None of these sites are within a groundwater protection zone, and the groundwater under the sites is not a source of drinking water.

The Guam High School Alternative project site at NCTS RTF Barrigada is located over the northern aquifer and is within the GEPA's designated groundwater protection zone, which encompasses the northern portion of the island. Approximately 70 percent of the island's potable water is groundwater from the Northern Lens aquifer, designated as a principal source aquifer under the Federal Safe Drinking Water Act. NCTS RTF Barrigada is currently serviced by two wells located within the installation.

### **3.1.7 Visual Resources**

With the exception of the Guam High School Alternative site at Barrigada, sites being considered under the Proposed Action and alternatives are located in generally urbanized or industrialized areas with mixed uses. The Barrigada site is in an undeveloped portion of the NCTS RTF property open to view from public roadway Route 16. However, private property approximately one-half mile (805 m) to the north (Barrigada Heights) and three-quarter mile (1.2 km) to the south (Barrigada) is an urban and industrial mixed use developed area. NCTS RTF covers over 2,000-acres (809-ha) to the east and southeast, while Tiyan and Guam International Airport lie directly west across Route 16 from the site.

#### **3.1.7.1 Proposed Action: Guam High School**

The Naval Hospital site occupies a prominent spot on the Agana Heights cliff line, with a commanding view of Anigua, Hagåtña, and Hagåtña Bay. The Naval Hospital lies within the secured perimeter of the Naval Hospital Complex. A chain-link fence surrounds the Hospital Complex. The site is open to view from passing motorists on public roadways in the area, including Route 7 and Marine Drive. The main hospital facility is set-back from the cliff line approximately 100 feet (30.5 m). Several of the two-story family housing units are located within 30 feet (9.1 m) of the cliff line.

### **3.1.8 Public Utilities and Services**

Public infrastructure is currently provided or is readily available to all proposed sites. The Navy owns the potable water treatment, storage, and distribution facilities for most of southern Guam, including the Naval Hospital Complex and Apra Harbor Naval Complex.

Electrical power to all sites is provided by the Guam Power Authority (GPA). GPA's current available generation capacity is approximately 550 megawatts (MW), with a present peak coincident demand of about 265 MW (GPA, June 2004).

### 3.1.8.1 Proposed Action

**Guam High School.** Potable water for the Naval Hospital Complex is currently serviced by the Navy-owned water system. Wastewater generated within Naval Hospital Complex is conveyed to the Guam Waterworks Authority (GWA) Hagåtña WWTP, where it is treated and then discharged off the western coast via an ocean sewer outfall into the Philippine Sea. Guam Telephone Authority (GTA) and Marianas Cable Vision (MCV) provide telephone and CATV services within the proposed project site. Police protection to the area is provided by COMNAVMARIANAS military police. Units working out of the Naval Hospital provide fire protection and Emergency Medical Services (EMS). There is also a Federal Fire Station located on Route 6 at Nimitz Hill, approximately one-mile (1.6-km) from the Hospital site.

**McCool ES/MS.** Potable water for the Apra Harbor Naval Complex is currently serviced by the Navy-owned water system. Wastewater generated within Apra Harbor Naval Complex is conveyed to the Navy's Apra Harbor WWTP located on Marine Drive. GTA and MCV provide telephone and CATV services to the proposed project site. Police protection is provided by COMNAVMARIANAS military police. Federal fire fighting units working out of the Apra Harbor Naval Complex provide fire protection and EMS.

### 3.1.8.2 Reasonable Alternatives

**Guam High School - Barrigada Alternative.** Potable water is available from a municipal waterline running along Route 16 and a Navy line running along Route 8. Sanitary wastewater systems are available along Route 8. GTA and MCV have active overhead and underground telephone and CATV services along Routes 8 and 16. Police protection is provided by COMNAVMARIANAS military police assigned to NCTS RTF. Guam Fire Department units out of Barrigada and Barrigada Heights provide fire protection and EMS.

**McCool ES/MS - Dadi Triangle Alternative.** Same as Proposed Action.

### 3.1.9 Land Use Compatibility

Sites being considered are located in mostly urbanized or industrialized areas with mixed land use. DoD noise compatibility criteria generally prohibits the siting of noise sensitive facilities such as schools within the A-Weighted 65 decibel (dBA) Day-Night Average Sound Level (DNL) contour. Although both High School sites are located within two miles (3.2 km) of Guam International Airport, neither are within the airport's 65 dBA DNL contour.

#### 3.1.9.1 Proposed Action

**Guam High School.** The site consists of currently developed land within the secured, fenced perimeter of the Naval Hospital Complex. Access to the site is controlled by COMNAVMARIANAS Public Safety, which provides security at the installation gate. All vehicles and personnel currently access the hospital complex at Gate 1. The installation is located within the highly urbanized area of Agana Heights. Land uses in the immediate project area are mixed, and include educational (Agana Heights School, Bishop Baumgartner Memorial School, Carlos L. Taitano School), residential, governmental (Government House), and recreational uses.

The Naval Hospital supports a helicopter landing pad, generally used for emergency patient transport. This helicopter pad is located approximately 700 feet (213 m) from the site of the proposed Guam High School building. The existing landing pad will be retained as a part of the proposed construction of a new Naval Hospital. The existing helicopter landing/approach (flight path) safety zone extends approximately 800 feet (256 m) to the north-northwest and 800 ft (256 m) to the south-southeast, extending approximately 400 ft (122 m) across the southwest side of the proposed school site.

Construction of the proposed Guam High School would require the demolition of approximately twenty Navy family housing units. The Navy Family Housing Office currently has an excess of family housing units. Two existing bachelor quarters facilities within the project site are also planned for demolition under separate action.

The Navy Bureau of Medicine and Surgery (BUMED) is planning to demolish and construct a new Naval Hospital within the Naval Hospital Complex, adjacent to the proposed Guam High School site. Demolition and construction of the hospital is currently planned for fiscal year (FY) 2009 through FY12. BUMED intends to route all construction related traffic through Gate 2. The plan also calls for the construction of a stand-alone Veterans Administration (VA) Community Based Outpatient Clinic (CBOC) on a site adjacent to the Naval Hospital Complex Gate 1, outside of the perimeter fence, with direct access from Route 7 (Sherlock, Smith and Adams, Inc., March 2004). Figure 3 shows one possible location for the CBOC facility just to the west of Gate 1.

**McCool ES/MS.** Access to the site is controlled by COMNAVMARIANAS Public Safety, which provides security at the installation gates. All vehicles and personnel must access the naval complex at the Main Gate located at the intersection of Marine Drive (Route 1) and Route 2A or the Back Gate located at the intersection of Route 2A and Shoreline Drive. The Back Gate is opened on workdays during morning and afternoon peak traffic hours; it is normally closed at all other times. The property is located within the urbanized and industrialized Apra Harbor Naval Complex. Land uses in the immediate project area are mixed, and include residential, religious, military, and recreational uses. Family housing units occupy adjacent property, along with the Navy Dental Clinic and Navy/Marine Corps Relief Society facility. There is also occasional aircraft-related noise at the Sumay site from military training operations on the Orote Peninsula.

The proposed school site is outside the Explosive Safety Quantity Distance (ESQD) arc associated with the Kilo Ammunition Wharf. Changes in the ESQD related to draft proposals to modify and upgrade the Wharf are not expected to encroach into the proposed ES/MS site.

### 3.1.9.2 Reasonable Alternatives

**Guam High School - Barrigada Alternative.** The Barrigada site is adjacent to Route 16, a major public roadway between Hagåtña, Barrigada, and Barrigada Heights. The site is near an existing Fleet Hospital Storage Facility and the Navy's long range communications antennas. The existing antennas at NCTS RTF vary in use and power, and generally transmit using shortwave and microwave frequencies. Long-term health effects associated with these frequencies or the resultant EMF are uncertain. The site is

otherwise undeveloped, and is isolated from other naval facilities, security, and support infrastructure. Private property both north and south of the site is highly developed and urbanized. Tiyan, the former Naval Air Station Agana, is directly across Route 16 from the site.

**McCool ES/MS - Dadi Triangle Alternative.** The Dadi Triangle site was previously developed for industrial purposes. The property is located within the urbanized and industrialized Apra Harbor Naval Complex. Land uses in the immediate project area are mixed, and include residential, religious, military, and recreational uses. Navy Public Works facilities occupy adjacent property, along with the Navy's Apra Harbor WWTP across Marine Drive, and the Harbor View family housing area to the southwest across Shoreline Drive. Due to the prevailing northeasterly tradewinds, the site is frequently impacted by odors associated with the Apra Harbor WWTP.

### **3.1.10 Socioeconomic Factors**

Guam is an unincorporated territory of the United States, and has served as a key strategic base for American military operations since 1898. Since the 1970's, there has been a movement in Guam for more self-government and for clarification of its relationship with the U.S., including proposals for statehood, commonwealth status, and independence. The population of Guam, estimated at 163,941 in 2003, is diverse in ethnic origin – 37 percent Chamorro, 26 percent Filipino, 10 percent Caucasian, 7 percent Hawaiian or other Pacific Islander, and 6 percent other Asian. The remaining 14 percent is a mix of other ethnic groups (U.S. Central Intelligence Agency, 2003).

The major components of Guam's economy are government, the military, tourism, and construction. In recent years, significant growth in the tourist industry has reduced reliance on the military. Currently, government and military employment accounts for almost one-third of all jobs on Guam (U.S. Central Intelligence Agency, 2003). However, The Department of Defense is now evaluating plans to significantly expand the military mission on Guam in recognition of its favorable proximity to key Pacific Rim regions. Any expansion would have a direct impact on the DoDEA-eligible student population.

The two main DoD components on Guam are the Navy, with facilities primarily in the Apra Harbor area, and the Air Force, headquartered at Andersen AFB in the northeast. There are also several Army Reserve, Air National Guard, and Army National Guard units housed at Andersen AFB. The number of military personnel stationed on the island dropped from 11,400 in 1993 to 4,442 in 2000, due to overall U.S. military cutbacks (U.S. Census Bureau, 2000).

## **3.2 Traffic**

During school hours, automobile traffic entering and exiting existing DDESS schools is light; the majority of students eligible for bus transportation arrive by school bus rather than private vehicles (approximately 90% of all high school students and approximately 75% of the McCool ES/MS students eligible for bus transportation regularly ride the bus) (Guam DoDEA, March 2004 and Julian Ng, Inc. 2004). Automobile traffic generated by the DDESS schools consists primarily of teachers and other staff arriving or departing the work site. Existing peak traffic hours at the Proposed Action and alternative sites generally occur after the school morning and afternoon peak traffic periods. At the existing schools, localized school traffic during peak hours is less than 100 vehicles per

hour in one direction (Julian Ng, Inc., 2004). High School instruction hours are from 7:30 am to 2:30 pm. ES/MS instruction hours are from 8:15 am to 3:15 pm. During the school day, traffic is generally limited to food deliveries, vending services, grounds maintenance, and occasional staff and student traffic.

### **3.2.1 Proposed Action**

**Guam High School.** Figure 3 shows the major roadways and landmarks in the Naval Hospital vicinity. Access to the site is via Route 7, a two lane public road with center left-turn lane. All vehicles and personnel, hospital patients, residents, and emergency vehicles enter the hospital complex via Gate 1, with Farenholt Avenue/Johnson Road serving as the primary access within the installation to the existing hospital and housing areas.

Gate 1 serves as the only entry and exit point for emergency vehicle access. Gate traffic is expected to yield to emergency vehicles using warning devices (e.g., flashing lights, siren, etc.). Gate 1 has shoulder areas adjacent to the traffic lanes to allow entering and exiting vehicles sufficient room to give-way to emergency vehicles as necessary. Gate 1 was recently improved with the construction of two lanes east of the guardhouse for entering traffic. Two lanes west of the guardhouse are used for exiting traffic. Only one lane of the inbound traffic lanes is used under normal operations; the right-most lane is usually blocked from use by traffic cones. The second lane acts as a shoulder, providing sufficient room for other vehicles to move laterally to open a path for emergency vehicles as necessary. In addition, a large paved area is located to the east of the inbound lanes, intended for short-term parking use by visitors needing to obtain vehicle passes, which is also available for handling any vehicles that may be blocking the entry lane. Alternatively, the right entry lane would also be available for emergency vehicle access through minimal coordination with the Gate 1 security officers (to move the traffic cones).

During peak traffic hours, existing traffic conditions at Gate 1 is at a Level of Service (LOS) B (not free-flow, but minimal delays) – with the exception of exiting traffic turning left onto Route 7 (LOS C) (some restrictions to flow and reasonable delays). Gate 2 is normally closed to traffic; it is opened only during contingency operations and special military training events. (Julian Ng, Inc., May 2004.)

A replacement Naval Hospital is planned for construction beginning in the FY08 timeframe. As shown on Figure 3, the new facility will be sited adjacent to the existing Naval Hospital, which will be demolished and replaced with new roadways and parking areas. During the construction phase of the new hospital, all construction-related traffic will be routed through Gate 2. Construction of a new VA Clinic is also being coordinated during this time frame. The existing VA Clinic is located in Wing E of the hospital.

**McCool ES/MS.** Figure 4 shows the main roadways in the Apra Harbor Naval Complex. Traffic enters the Apra Harbor Naval Complex via the main gate, and during peak traffic hours via the back gate. Marine Drive provides primary access to the Sumay site. In general, traffic in this area is light, consisting of personal automobile traffic from the Lockwood family housing area and military traffic transiting to and from the Kilo Ammunition Wharf, Sumay Cove, and Gabgab Beach area. Existing traffic conditions at key intersections within the Apra Harbor Naval Complex (e.g., Marine Drive and

Shoreline Drive, Marine Drive and Orote Point Drive) are at a LOS B or better (not free-flow, but minimal delays) – with the exception of the Main Gate, which is impacted by security inspection times, especially during increased AT/FP threat-conditions. (Julian Ng, Inc., May 2004.)

### **3.2.2 Reasonable Alternative**

**Guam High School - Barrigada Alternative.** Figure 5 illustrates the main roadways in the Barrigada vicinity. Access to the site is via Route 16, a four-lane divided public road. Route 16 serves as a primary access route to Tiyan and the central U.S. Post Office. Existing traffic along this segment of Route 16 is moderate, with peak traffic hours generally after the high school morning and afternoon school bus arrival and departure times. New signalized intersections and upgrades to existing intersection signalization are currently planned for the Route 8/10/16 intersection south of the site (Guam Department of Public Works, n.d.).

**McCool ES/MS - Dadi Triangle Alternative.** Figure 3 shows the major roadways in the Dadi Triangle vicinity. Existing traffic at the Dadi Triangle ES/MS Alternative is similar to the Proposed Action.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Overview**

This chapter evaluates the probable direct, indirect and cumulative environmental impacts of the Proposed Action and alternatives. It provides a review of the Proposed Action and alternatives' consistency with Executive Orders and objectives of Federal land use policies and controls. It also discusses irreversible and irretrievable commitments of resources, relationship of short-term uses and long-term productivity and finally, energy requirements and conservation potential of the Proposed Action and alternatives.

#### **4.1.1 Topography and Drainage**

None of the alternatives would have a significant impact on topography or drainage. Though the alternatives call for development of the proposed sites, each would have a minimal impact on the existing topography within the project areas, which, except for Barrigada, have been previously developed. Clearing and grading would be necessary to prepare the sites for construction of school facilities.

The Proposed Action and alternatives may alter drainage patterns and result in an increase in the quantity of stormwater runoff from each site. The storm drain system for the proposed sites will be designed to minimize the slope of graded areas, and incorporate the use of grass lined swales, stormwater retention systems, and/or stormwater leach fields to minimize the increase in stormwater runoff generated from the sites. During construction, Best Management Practices (BMPs), such as the use of temporary sediment basins, silt fences, and drain inlet covers will be used to control erosion. The construction contractor will be required to coordinate with the Government of Guam for approval of a clearing and grading permit and compliance with other applicable environmental regulations for the project (e.g., construction storm water phase II Notice of Intent (NOI), construction storm water pollution prevention plan, etc.).

Under the No Action Alternative, new schools would not be constructed, resulting in no impact to topography, soils, or drainage.

#### **4.1.2 Flora and Fauna**

The Proposed Action and alternatives would not adversely impact any species of plants or animals that are proposed for listing or are listed as threatened or endangered species under ESA. None have been observed, or would be expected to occur, on any of the project sites.

#### **4.1.3 Cultural Resources**

For the purposes of this analysis, significant cultural resources are those properties listed, or eligible for listing in the NRHP. As defined in the implementing regulations for Section 106 of the NHPA, impacts of an undertaking on significant cultural resources would be considered adverse if they "diminish the integrity of the property's location, design setting, materials, workmanship, feeling, or association" [36 CFR 800.9 (b)]. Examples of adverse effects include, but are not limited to, the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from, or alteration of the character of, the property's setting when that character contributes to the property's qualification for listing on the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property, or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property [36 CFR 800.9 (b)].

#### **4.1.3.1 Proposed Action**

**Guam High School.** The proposed Guam High School would have no effect on cultural resources.

**McCool ES/MS.** COMNAVMARIANAS has consulted with the GHPO (see correspondence in Appendix B). GHPO expressed concerns over the possibility of encountering additional WWII burials associated with the mass graves, defensive trenches, and gun positions near the proposed McCool ES/MS site. Ground disturbing activities associated with the proposed construction of the McCool ES/MS have the potential to encounter and adversely affect cultural resources. In response to the Section 106 consultation, GHPO has required that archaeological monitoring be conducted. A draft archaeological monitoring and discovery plan for implementation during construction ground disturbing activities was submitted to GHPO (Appendix A). GHPO comments have been incorporated into a final Monitoring and Discovery Plan which was approved by GHPO and will be implemented during construction.

#### **4.1.3.2 Reasonable Alternatives and No Action Alternative**

The Reasonable and No Action Alternatives to the Proposed Action would have no effect on cultural resources.

#### **4.1.4 Air Quality and Noise**

The Proposed Action and alternatives would not be expected to significantly affect air quality and noise. Some temporary short-term air quality and noise impacts would be expected during construction and when the schools are in operation, primarily associated with school activities, traffic, and the use of emergency diesel generators. A modification to the GEPA-issued Clean Air Permit would be required to operate the emergency diesel generators at the proposed Guam High School and McCool ES/MS.

Both the proposed High School and ES/MS would be provided with an active radon ventilation system.

#### **4.1.5 Hazardous and Regulated Materials**

The Proposed Action and alternatives would not be expected to encounter or create significant sources of hazardous or regulated materials. If encountered, AC piping would be removed only as necessary where it interferes with the proposed construction.

Abatement and disposal of any hazardous or regulated materials from the project sites would be addressed in the construction documents and conducted in accordance with local and Federal regulations.

#### 4.1.5.1 Proposed Action

**Guam High School.** Construction documents would include provisions to ensure that air samples are collected and analyzed periodically during demolition activities. Non-friable asbestos found in floor tiles of family housing units planned for demolition would be removed prior to demolition of the buildings in accordance with applicable local and Federal Regulations.

Construction documents would incorporate further sampling and analysis for LBP within the existing buildings prior to demolition. The sampling would be used to determine the manner in which the building materials would be handled and disposed of during construction. The contractor would be required to remove and dispose of all LBP prior to demolition of buildings or other facilities in accordance with local and Federal regulations.

The playground located on Crandall Road would also be demolished. Treated lumber used at the playground would not require special handling. The lumber was collected and analyzed for TCLP-arsenic, and was found not to be a RCRA regulated hazardous waste.

There are nine PCB-free power transformers on site that contain mineral oil. Those identified for replacement or disposal as part of the construction project would be drained of mineral oil prior to delivery to the Defense Reutilization and Marketing Office. The mineral oil would be handled in accordance with Navy regulations.

Window-type air conditioning units that contain refrigerants would be properly disposed of in accordance with applicable local and Federal regulations. Recovery of refrigerants in central-type air conditioning units from housing units would be conducted by an EPA certified technician using a certified recovery unit or recovery/recycle unit at a permitted solid-waste processing site. Refrigerants recycled or reclaimed are not considered hazardous under Federal law.

**McCool ES/MS.** Except for AC piping as mentioned above, the project would not be expected to encounter any other potentially hazardous or regulated materials or be affected by existing contamination.

#### 4.1.5.2 Reasonable Alternatives

**Guam High School.** Except for AC piping as mentioned above, the project would not be expected to encounter any other potentially hazardous or regulated materials or be affected by existing contamination.

**McCool ES/MS.** Soil in areas within the proposed alternative site were previously remediated to required standards for PCB contamination. It is unclear whether this remediation level meets standards for use as school purposes. Further analysis would

be required to determine whether additional remediation would be necessary. Except for AC piping as mentioned above, the project would not be expected to encounter any other potentially hazardous or regulated materials.

#### **4.1.6 Ground and Surface Water Resources**

The Proposed Action and alternatives would not involve installing waste disposal systems or other facilities that may contaminate groundwater resources, and would have no impact to ground or surface water resources. Standby generators would be installed under the Proposed Action and alternatives that would use diesel fuel tanks. The diesel fuel tanks would be designed and managed according to the COMNAVMARIANAS Spill Prevention Control and Countermeasure Plan and as required by EPA Oil Pollution Prevention regulations (40 CFR 112) to prevent spills from reaching ground and surface water resources. Low-impact stormwater development design strategies that include runoff-retaining percolating leach fields, if used, would incorporate BMPs. As such, there would be no impact to surface and groundwater quality, or aquifer recharge potential in the project areas.

#### **4.1.7 Visual Resources**

The Proposed Action and the alternatives would not be expected to have significant impacts on the visual resources of the areas.

##### **4.1.7.1 Proposed Action**

**Guam High School.** The Proposed Action would demolish and replace twenty existing two-story housing units and administrative buildings, some of which are built as close as 30 ft (9.1 m) to the cliff line, with a two-story school facility set-back from the cliff line approximately 200 ft (69 m). The school facilities would be visible from parts of downtown Hagåtña, Anigua, and Tamuning, as well as Oka Point and Hagåtña Bay. The project site offers the same views of Hagåtña and Hagåtña Bay as other properties, and would not impact view planes from adjacent properties.

**McCool ES/MS.** The Sumay site is wholly within the Apra Harbor Naval Complex, isolated on the Orote Peninsula. It would not impact view planes from adjacent properties.

##### **4.1.7.2 Reasonable Alternatives**

**Guam High School - Barrigada Alternative.** The Barrigada site is centrally located in a peripheral area of NCTS RTF along Route 16. A high school at this site would not impact view planes from adjacent properties.

**McCool ES/MS - Dadi Triangle Alternative.** Same as Proposed Action.

##### **4.1.7.3 No Action Alternative**

Under the No Action Alternative, no construction would be undertaken, resulting in no impact to visual resources.

#### **4.1.8 Public Utilities and Services**

The Proposed Action and alternatives would not be expected to significantly affect response time for COMNAVMARIANAS military police or Federal fire fighters/EMS, or have significant impacts on public utilities or services.

##### **4.1.8.1 Proposed Action**

**Guam High School.** Potable water at the Naval Hospital site comes from the Navy owned water system, and the school would not impact the public water system. The proposed school construction (accounting for planned family housing demolition) would result in a net water consumption decrease of approximately 6,000 gallons per day (gpd) (22,700 liters per day (lpd)) (18 percent decrease) from the Naval Hospital Complex. Estimated peak domestic water demand due to future expansion would increase approximately 4,000 gpd (15,150 lpd), (13 percent increase).

Wastewater generated within Naval Hospital Complex is conveyed to a GWA sewer running along Route 7, and is ultimately conveyed to the GWA Hagåtña WWTP. The proposed school construction (accounting for planned family housing demolition) would result in a net wastewater decrease of approximately 5,000 gpd (18,930 lpd) (17.5 percent decrease) from the Naval Hospital Complex. Estimated peak wastewater demand due to future expansion would increase approximately 3,500 gpd (13,250 lpd)(12.9 percent increase).

The school would connect into the existing Hospital Complex electrical grid. A new primary circuit from the Hagåtña Substation would also be added to the hospital grid, which would provide a backup power feed for the school. A standby generator would be provided to support the school during a power outage. GTA and MCV services would be provided from existing utilities infrastructure. The proposed school construction would have no impact to electric, telephone, cable television, or data services.

**McCool ES/MS.** Potable water at the Sumay site comes from the Navy-owned water system, and would not impact the public water system. The proposed school construction (based on pre-demolition family housing per capita consumption) would result in a net water consumption decrease of approximately 45,400 gpd (171,860 lpd) (50 percent decrease) from the Sumay site. Estimated peak domestic water demand due to future expansion would decrease approximately 32,100 gpd (121,510 lpd) (36 percent decrease) (AM Partners, Inc., March 2004).

The existing ES/MS wastewater is conveyed to the Navy's Apra Harbor WWTP. The Sumay site also utilizes the Apra Harbor WWTP. The relocation of the school to the proposed site would have no affect on plant capacity. Though the WWTP is currently under capacity, preliminary design calculations indicate that segments of the existing off-site sewage lines may not be adequate to accommodate the projected flow rates for this project (AM Partners, March 2004, referencing a 1994 Utility Technical Study and 1997 Utility Analysis Assessment). To accommodate the additional wastewater flow, off-site sewer relief lines would be added as part of this project.

An existing 13.8 KV primary electrical circuit would serve the new McCool ES/MS. A standby generator would be provided to support the school during a power outage. GTA and MCV services would be provided from existing utilities infrastructure. The proposed school construction would have no impact to electrical, telephone, cable television, or data services.

#### **4.1.8.2 Reasonable Alternatives**

**Guam High School - Barrigada Alternative.** Impacts are anticipated to be similar to the Proposed Action, with the exception of potable water supply and wastewater treatment. Potable water would be provided by connecting into a waterline line from NCTS RTF or a municipal waterline running along Route 8 to the south. Wastewater would either connect into the municipal wastewater line running along Route 8 to the south, or be handled by a new IWDS (AM Partners, 1997). Availability of these options were not verified for the site. Potable water consumption and wastewater generation, regardless of design or connection method, would not be expected to significantly impact public infrastructure or services.

Police protection to the area is provided by COMNAV MARIANAS military police assigned to NCTS RTF. Due to the site's distance from DoD fire and EMS units, both fire protection and EMS services would be provided primarily by local Guam Police Department and Guam Fire Department units. The Proposed Action is not expected to significantly affect response time for police or emergency services.

**McCool ES/MS - Dadi Triangle Alternative.** Impacts are anticipated to be similar to the Proposed Action.

#### **4.1.8.3 No Action Alternative**

Under the No Action Alternative, the new schools would not be constructed, resulting in no impact to public infrastructure or services in the project areas.

#### **4.1.9 Land Use Compatibility**

The Proposed Action and the alternatives would not be expected to have significant impacts on land use compatibility. The change in land use is considered insignificant for each of the sites.

##### **4.1.9.1 Proposed Action**

**Guam High School.** Though four arrival/departure tracks from Guam International Airport fly over the Naval Hospital Complex, the school site is more than one-mile (1.6 km) outside of the Guam International Airport 65 dBA contour, indicating land use compatibility with airfield activities.

The proposed high school would be compatible with the location of the existing helicopter approach/departure safety zone, which extends across approximately 400 ft (122 m) of the southwest corner of the proposed school site, near the proposed location of the school's baseball field. The impact of the school on helicopter approach/departure operations and safety of flight personnel, associated aviation medical personnel, and patients is expected to be minimal. The proposed facility design specifications, which

include a reinforced concrete exterior structure and enhanced strength windows, would be expected to attenuate, to acceptable levels, any noise associated with the infrequent helicopter operations, with no significant impact to school community health and safety.

A fence would be constructed to separate the high school from the existing Naval Hospital, helicopter pad, and associated safety zone as required. Additionally, the Proposed Action would include a 6-ft (1.8 m) high fence around the baseball/softball field and across the access road to the running track/football/soccer field. This fence would provide separation between the school and the Naval Hospital Complex. Non-DoD visitors to the school would be required to obtain a pass through the installation's security pass and identification office.

The operation of Guam High School would not be expected to impact the planned demolition, construction, or operation of the new Naval Hospital or VA CBOC located within the existing Naval Hospital Complex. Impact to school operations due to Naval Hospital construction (specifically, the routing of construction traffic through Gate 2) will be short-term and can be minimized by school initiated awareness campaigns, traffic control enforcement, and coordination with the construction contractor.

**McCool ES/MS.** There is occasional aircraft-related noise at the Sumay site from military special training operations on the Orote Peninsula. These operations are sporadic and short-term, and would not be expected to cause any significant impacts to student or faculty health and safety.

The Proposed Action is compatible with the existing Kilo Ammunition Wharf ESQD arc.

#### 4.1.9.2 Reasonable Alternatives

**Guam High School - Barrigada Alternative.** Potential EMF impacts to the school community from adjacent NCTS RTF antennas would require further evaluation prior to development of the property for a new school.

The use of the site for school purposes would be compatible with the Guam International Airport noise contours.

**McCool ES/MS - Dadi Triangle Alternative.** Unpleasant odors associated with the Navy's Apra Harbor WWTP may impact the ability of teachers to effectively and efficiently educate students. Due to the odors, the site is less desirable for development of a school facility.

Though remediation was conducted to remove PCBs to required levels, trace amounts of PCBs remain in the soil. Further analysis would need to be conducted prior to development of the property for school purposes.

#### 4.1.9.3 No Action

Under the No Action Alternative, the new schools would not be constructed, resulting in no impact to land use compatibility in the project areas.

#### **4.1.10 Socioeconomic Factors**

The Proposed Action and alternatives would provide beneficial impacts associated with construction period employment opportunities for Guam construction contractors and employees, and educational employment opportunities associated with the future expansion of the schools. Beneficial impacts could include, for example, construction-related jobs and education-related jobs associated with future enrollment growth, and facility maintenance related jobs.

Under the No Action Alternative, no construction would be undertaken. Students would continue to attend classes in undersized and poorly configured classrooms, and the schools would continue to operate with on-site playfields that are not adequate to support desired educational and extra-curricular programs.

### **4.2 Traffic**

Both the Proposed Action and alternatives would be expected to have only minor traffic impacts. Regional impacts are minimal because the schools are being relocated to new sites within the same general area. Localized impacts would be insignificant because of the high preponderance of students using buses (approximately 90% of all high school students and approximately 75% of the McCool ES/MS students eligible for bus transportation regularly ride the bus) (Guam DoDEA, March 2004 and Julian Ng, Inc. 2004). Additional traffic resulting from the Proposed Action or alternatives would consist of less than 100 vehicles per hour in the peak hour, comprised of buses and student, faculty, and staff automobiles. School generated traffic would occur before morning and afternoon peak traffic hours.

Trip generation for both the high school and ES/MS is estimated as follows:

- High school traffic would consist of approximately 40 automobiles arriving before 7:00 am and leaving after 2:30 pm, with an additional 30 automobiles arriving between 7:00 and 7:30 am and leaving between 2:00 and 2:30 pm. Approximately 15 other automobiles and 13 buses would be expected to arrive and depart between 7:00 and 7:30 am and between 2:00 and 2:30 pm. (Julian Ng, Inc., May 2004.)
- ES/MS school traffic would consist of approximately 70 automobiles arriving before 7:30 am and leaving after 3:30 pm, with an additional 40 automobiles and eleven buses arriving and departing between 7:45 and 8:15 am and between 2:45 and 3:15 pm. (Id.)

Modified security procedures or contingency operations affecting traffic at installation gates (e.g., enhanced threat conditions, special events, etc.) would be dealt with on a case-by-case basis, with the DoDEA DSO coordinating necessary requirements with COMNAVMARIANAS Public Safety Office and the Naval Hospital.

Under the No Action Alternative, the new schools would not be constructed. Therefore, there would be no impact to existing traffic in the project areas.

#### **4.2.1 Proposed Action**

**Guam High School.** The proposed relocation of the Guam High School from Nimitz Hill in Asan to the Naval Hospital Complex in Agana Heights would affect traffic volumes on Route 6 and Route 7. Volumes on Route 6, which serves the existing school, would generally be reduced except for the 800-ft (244-m) section between Marine Drive and Route 7 in Adelup. Traffic on Route 7 would increase, with most traffic expected to affect the portion of Route 7 between the Naval Hospital and the junction of Route 7 and Route 6. The greatest impact would be at the Naval Hospital Complex Gate 1.

Peak school traffic occurs before 7:30 am and 3:00 pm. Analysis of the conditions at the gate indicate that the major impact of the traffic due to the Proposed Action would occur earlier than the existing peak traffic periods, both inbound (morning) and outbound (afternoon). Gate 2 would be used for school bus access during the morning and afternoon hours. The proposed use of Gate 2 in the morning and afternoon student arrival and departure times would alleviate potential delays at Gate 1, including delays associated with hospital access for patients and staff. At all other times, school related traffic would enter and exit the Hospital Compound via Gate 1, and would have a minor impact to normal hospital complex traffic.

The use of Gate 2 for High School traffic would minimize the impact of increased traffic on the Naval Hospital mission caused by school operations, and ensure access is maintained at an acceptable LOS. Vehicular traffic at Gate 1 would continue to yield to emergency vehicles and existing security procedures at the gate would continue to allow emergency vehicle access with minimal delay.

Route 7 fronting the Naval Hospital is a two-lane road with center left turn lane that would allow stacking of eastbound bus traffic in the morning. Although considered minor, the stacking of buses in the center left-turn lane could cause localized delays for adjacent residential and business properties. This minor impact would be addressed by use of the existing Gate 2 configuration to allow school bus traffic to stack within the gate area while awaiting passenger identification checks. An operational plan making use of staggered bus arrival times would minimize queuing of traffic on Route 7.

With the exception of vehicles turning left from the Naval Hospital Gate 1 onto Route 7 in the afternoon peak hour, the LOS for the gate turning movements would not be expected to change as a result of the Proposed Action. Level of Service for afternoon peak hour traffic turning left onto Route 7 from the Naval Hospital would decline from existing LOS C (some restrictions to flow and reasonable delays) to LOS D (long delays, stable flow). Level of Service D or better is generally considered acceptable for an urbanized area such as the Naval Hospital Gate 1/Route 7 intersection (Julian Ng, Inc., 2004). The existing unsignalized intersection at Gate 1 would have sufficient capacity to serve expected increased traffic exiting in the afternoon.

During the school construction phase, Gate 2 would be used as the primary access point from Route 7 for construction related traffic, resulting in minimal impact to Gate 1 traffic.

Potential future expansion of school capacity to 650 students would result in an insignificant increase in peak traffic. Daily school operations would also not be expected to impact the operation of a new Naval Hospital or stand-alone VA Clinic at the Naval Hospital Complex. If the high school is expanded in the future, a bus storage area at Gate 2 to accommodate the stacking of at least two buses would be required.

During the new hospital construction phase planned for FY08 through FY10, Gate 2 will also be used as the primary access point from Route 7 for all construction related traffic. Project managers would coordinate with school transportation officials to ensure minimal impact to hospital construction and school operations. Planned changes to the locations of the hospital facility and VA clinic within the Naval Hospital Complex would be expected to have an insignificant impact on existing traffic conditions, with minimal impact on the school operations.

**McCool ES/MS.** The proposed relocation of McCool ES/MS from Apra Heights to the Sumay area would affect traffic volumes on Route 5, Route 2A, Shoreline Drive, and Marine Drive. The closing of the existing school in Apra Heights would result in reduced traffic volume on Route 5 and on Route 2A between Marine Drive and Route 5. The greatest impact would be caused by additional traffic entering through Gate 1 at the Apra Harbor Naval Complex. This can be addressed by assigning additional sentries during peak periods to conduct concurrent (tandem) vehicle checks and through the use of the Back Gate.

No impacts to traffic beyond the area between the Apra Heights school location and Apra Harbor Naval Complex are expected. Potential future expansion to 1,100 students would result in an insignificant increase in peak traffic. With the exception of vehicles turning left from Shoreline Drive onto Marine Drive, the LOS within the Apra Harbor Naval Complex intersections would not be expected to change as a result of the Proposed Action. LOS for traffic turning left onto Marine Drive from the Shoreline Drive would reduce from existing LOS B (not free-flow, but minimal delays) to LOS C (some restrictions to flow and reasonable delays). LOS D or better would generally be considered acceptable for an urbanized area such as the Shoreline Drive/Marine Drive intersection (Julian Ng, Inc., 2004).

#### **4.2.2 Reasonable Alternatives**

**Guam High School - Barrigada Alternative.** The Barrigada High School would be accessed from Route 16. Relocation of the school from Nimitz Hill to Barrigada would generally only affect traffic volumes on Route 8 and Route 16. Traffic on both routes would increase slightly, with the greatest impact at the access point to the school from Route 16. Traffic improvements on Route 16 at the school's entry may be required and would need to be further evaluated. Implementation of this alternative, given the low number of vehicles associated with school traffic, would not be likely to impact any of the key intersections in the northern, Barrigada, or southern regions of Guam. Any increase in traffic on Routes 8 and 16 due to Guam High School operations would be considered insignificant.

**McCool ES/MS - Dadi Triangle Alternative.** Access to the Dadi Triangle site is similar to the Sumay site, with traffic impacts considered insignificant.

Table 2 below summarizes the potential impacts and improvements for the Proposed Action and associated reasonable alternative.

**Table 2: Summary of Potential Traffic Impacts**

Roadway/Intersection	Potential Impact/Improvements	
	Proposed Action	Reasonable Alternative
<b>Guam High School:</b> Entrance to site	<p><b>Impact:</b> Potential bus queuing on Route 7 at Gate 1; difficult turn from Gate 1 onto Johnson Road.</p> <p><b>Improvement:</b> Use Gate 2 for school traffic entry &amp; exit, and as a school bus stacking area as necessary. Minimize queuing on Route 7 by making use of staggered bus arrival times. Expansion of the school would require development of an expanded bus stacking area.</p>	<p><b>Impact:</b> Potential bus queuing on Route 16 at school entrance.</p> <p><b>Improvement:</b> Possible signalization or turning lane(s) at school access driveway on Route 16.</p>
<b>McCool ES/MS</b> Access road at Marine Drive	<p><b>Impact:</b> Potential increase in traffic volumes on Marine Drive.</p> <p><b>Improvement:</b> None required. Insignificant impact to existing installation gate conditions and internal roadway conditions.</p>	<p><b>Impact:</b> Potential increase in traffic volumes on Marine Drive.</p> <p><b>Improvement:</b> None required. Insignificant impact to existing installation gate conditions and internal roadway conditions.</p>

### 4.3 Cumulative Impacts

Cumulative impacts to environmental resources result from the incremental effects of development and other actions when evaluated in conjunction with other government and private past, present and “reasonably foreseeable actions.” Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. Analysis of cumulative impacts was conducted on a qualitative basis, and included an assessment of known land use changes in the vicinity (none were identified), as well as future planned and potential actions within the area (e.g., construction of a new Naval Hospital and VA Clinic at the Naval Hospital Complex).

The Proposed Action and alternatives, when added to other past, present, and reasonably foreseeable future actions would not have a significant cumulative impact on the environment.

Construction of a replacement Naval Hospital and VA Clinic is projected to occur during FY08 through FY10, after completion of the Proposed Action. Because the construction periods would not overlap, there would be no cumulative construction period impacts.

The Proposed Action and alternatives would represent a minor change from current land use, and an increase in the utilization of the property at each site. The Department of Defense owns in fee the surrounding land at each site (each site is wholly within an existing Naval Installation), and no foreseeable future actions influenced by development of the project sites that would have significant cumulative impacts on the environment at or near the proposed school sites were identified.

#### **4.4 Compliance with Executive Orders**

This section describes how the Proposed Action and alternatives comply with relevant Executive Orders.

##### **4.4.1 Executive Order 12898, Environmental Justice in Minority Populations and Low-Income Populations**

In accordance with Executive Order 12898 dated February 11, 1994, and Secretary of the Navy Notice 5090 dated May 27, 1994, the Navy is required to identify and address potential for disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations.

The Proposed Action and alternatives are wholly located within U.S. Navy installations. There are no known significant or adverse environmental impacts, including human health, economic or social effects that would disproportionately affect minority or low-income communities resulting from the Proposed Action, reasonable alternatives, or the No Action alternatives. The Proposed Action and reasonable alternatives would provide benefits to minority populations and low-income populations by providing employment opportunities to local workers and improved educational opportunities to minority and low-income DoDEA students.

##### **4.4.2 Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks**

In accordance with Executive Order 13045 dated April 21, 1997, Federal agencies are required to make children's health a high priority. To the extent permitted by law and appropriate and consistent with its mission, each Federal agency:

- Shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and
- Shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The Proposed Action and alternatives would not create environmental health and safety risks that may disproportionately affect children. Because no significant impacts on environmental resources are expected from the Proposed Action, it would not increase any health and safety risks to children.

#### **4.4.3 Executive Order 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition**

Executive Order 13101, dated September 16, 1998, is intended to improve the Federal government's use of recycled products and environmentally preferable products and services. It states that pollution that cannot be prevented should be recycled and pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should only be conducted as a last resort.

The Proposed Action and reasonable alternatives would incorporate efficient waste handling and provisions for recycling waste products. The demolition debris would be recycled to the maximum extent possible. The remaining demolition debris would be disposed in a local landfill to be determined by the demolition contractor.

#### **4.4.4 Executive Order 13123, Greening the Government Through Efficient Energy Management**

Executive Order 13123, dated June 8, 1999, requires the Federal government to improve its energy management for the purpose of saving taxpayer dollars and reduce emissions that contribute to air pollution and global climate change. Federal agencies are required to reduce greenhouse gas emissions; reduce energy consumption per square foot of facility; strive to expand use of renewable energy; reduce the use of petroleum within its facilities; and reduce water consumption.

The Proposed Action and reasonable alternatives would incorporate resource saving design features such as energy efficient windows and lighting, low-flow plumbing fixtures, and other such features where possible.

### **4.5 Compliance with the Objectives of Federal Land Use Policies, Plans and Controls**

#### **4.5.1 Guam Military Land Use Master Plan (GMLUMP)**

The GMLUMP (July 1995) is the DoD plan for military-controlled land in Guam for a ten-to twenty-year period. In part, the plan identifies excess lands for potential sale, exchange or release. The plan does not identify property associated with the Proposed Action or alternatives as excess to the DoD and available for release.

#### **4.5.2 Coastal Zone Management Act**

The purpose of the CZMA is to encourage states and territories to manage and conserve coastal areas as a unique, irreplaceable resource. Federal activities that directly affect the coastal zone are to be conducted in a manner consistent with the State's or Territory's Coastal Zone Management Program, to the maximum extent possible. The CZMA states that land subject solely to the discretion of the Federal government, such as Federally owned or leased property, is excluded from the State's or Territory's coastal zone. However, Federal activities that directly affect the coastal zone are to be conducted in a manner consistent with the State's or Territory's Coastal Zone Management Program to the maximum extent practicable.

COMNAVMARIANAS has conducted an effects test and concluded that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any coastal use or resource of Guam's coastal zone. COMNAVMARIANAS has notified the Guam Bureau of Statistics and Plans (BSP) of this Negative Determination (Appendix C).

#### **4.5.3 Irreversible and Irretrievable Commitments of Resources**

Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the Proposed Action and alternatives are implemented. The Proposed Action and reasonable alternatives would involve developing federal property for school purposes. However, it would not commit land resources irreversibly or irretrievably from Federal control.

#### **4.6 Relationship of Short-Term Uses and Long-Term Productivity**

This section lists the trade-offs between short- and long-term gains and losses due to the Proposed Action. "Short-term" refers to the construction period; "long-term" refers to the operational period. The Proposed Action and reasonable alternatives would have the following short- and long-term gains and losses:

- Short-term air quality, noise and traffic impacts (during construction).
- Short term socio-economic benefits associated with major construction projects.
- Long-term gains in student achievement associated with modern instructional facilities and teaching environments.

The No Action Alternative would result in a long-term loss in student achievement potential and social well being associated with providing efficient and functional educational facilities.

#### **4.7 Energy Requirements and Conservation Potential**

The Proposed Action and reasonable alternatives would comply with design energy budgets specified in MIL-HDBK 1190, Naval Facilities Engineering Command (NAVFAC) letter, 11100, Ser 15C/pnb of June 5, 1995 and 10 CFR 435.

In addition, other methods of promoting energy savings and conservation can be incorporated into the design and construction of the proposed new and renovated facilities. Policies adopted by NAVFAC establish a general framework suitable for the inclusion of sustainability principles and concepts early in the design of new facilities. Examples of initiatives addressed by these principles include:

- Increased energy conservation and efficiency;
- Increased use of renewable energy resources;
- Selection of materials and products based on their life-cycle environmental impacts;
- Increased use of materials and products with recycled content;
- Recycling of construction waste and building materials after demolition.

## **5.0 LIST OF AGENCIES CONSULTED**

### **Federal**

Commander, U.S. Naval Forces Marianas

U.S. Navy Bureau of Medicine and Surgery

Naval Hospital, Guam

Domestic Dependent Elementary and Secondary Schools

### **Local**

Territory of Guam, Office of the Governor

Guam Environmental Protection Agency

Guam Bureau of Statistics and Plans

Guam Department of Public Works

Guam Department of Parks and Recreation

Guam Historic Preservation Officer

## 6.0 REFERENCES

- Athens, J. Stephen. *Archaeological Investigations at Tarague Beach, Guam*. Prepared for Andersen AFB, Department of the Air Force, APO San Francisco (1986).
- Bonhomme, Theresa and John L. Craib. *Radiocarbon Dates from Unai Bapot Saipan: Implications for Marianas Prehistory*. Journal of Polynesian Society 96 (1):95-106 (1987).
- Butler, Brian M. *Archaeological Investigations in the Achugao and Matansa Areas of Saipan, Marianas Islands*. Prepared for Pelley Enterprises, Nansay Micronesia Corporation and the Division of Historic Preservation, Department of Community and Cultural Affairs, Saipan, CNMI (1987).
- Code of Federal Regulations, Title 36, Part 60, *National Register of Historic Places*.
- Commander, Naval Facilities Engineering Command, Pearl Harbor. *Natural Resources Survey for the U.S. Naval Communications Area Master Station, Guam (NAV CAMS)*. Prepared by Hawaii Bio Systems Analysis, Inc. (1989).
- Commander, Naval Forces Marianas. *Planning/Concept Study for DDESS Schools on Guam*. Prepared by AM Partners, Inc. (May 1997).
- Craib, J.L. *Archaeological Surveys of Military Lease Lands on Tinian for the Partial Mitigation of Adverse Effects in Conjunction with the FY93 Tandem Thrust Training Exercise*. Prepared for Department of the Navy, Pacific Division, Honolulu, Ogden Environmental and Energy Services Co. Inc., Honolulu (1993).
- DD Form 1391. Project No. DDESS 05.01, Guam High School (Sep 2003).
- Department of Defense. MIL-HDBK 1005/8A, *Domestic Wastewater Control* (Feb 1997).
- Department of the Navy, Naval Facilities Engineering Command. *Naval Facilities Engineering Command Planning and Design Policy Statement 98-01 Design of Sustainable Facilities and Infrastructure* (June 1998).
- Department of the Navy, Naval Facilities Engineering Command. *Naval Facilities Engineering Command Planning and Design Policy Statement 98-02 Criteria Supporting the Design of Sustainable Facilities and Infrastructure* (June 1998).
- Department of the Navy, Naval Facilities Engineering Command, Pacific Division. *Hazardous Materials Survey Report, 35% RFP Design Submittal for FY05 DoDEA MILCON Project DDESS 05-01, Guam High School Replacement, U.S. Naval Hospital Compound, Guam*. Prepared by Danilo D. Lopez Associates, Inc. (December 2003).
- Department of the Navy, Naval Facilities Engineering Command, Pacific Division. *Partnering Agreement for Functional Analysis Concept Development (FACD) Study, FY05 DoDEA MILCON Project DDESS 05-01, Guam High School Replacement, U.S. Naval Hospital Compound, Guam*. Prepared by Danilo D. Lopez Associates, Inc. (December 2003).
- Department of the Navy, Pacific Division, Honolulu. *Draft Partnering Agreement Report, Functional Analysis Concept Development (FACD), FY00 Elementary/Middle School, Andersen AFB, Guam*. Prepared by AM Partners, Inc. (August 1998).

- Department of the Navy, Pacific Division, Honolulu. *Partnering Agreement for Functional Analysis Concept Development (FACD) Study, FY06 DoDEA MILCON Project DDESS 06-01, CDR William C. McCool Elementary/Middle School Replacement, Naval Forces Marianas Support Activity, Main Base, Guam*. Prepared by AM Partners, Inc. (November 2003).
- Department of Veterans Affairs. *Capital Asset Realignment for Enhanced Services [CARES], VISN 21* (April 2003).
- Engineering Concepts, Inc. *Utility Technical Study for Potable Water and Sanitary Sewer Systems Volume 1, Apra Harbor Naval Base and Naval Magazine* (December 1994).
- Engineering Concepts, Inc. *Utility Technical Study for Potable Water and Sanitary Sewer Systems Volume 1, U.S. Naval Hospital & Nimitz Hill, Guam* (March 1995).
- Federal Aviation Administration. *Federal Air Regulation Part 150 Noise Exposure and Land Use Compatibility Study, Guam*. Explanation, FAQs, and Charts, at <http://www.pcrguam.com/noise/faqs/faqs.htm#4> (last accessed June 2004).
- Guam Department of Public Works. *Guam Island-Wide Transportation Improvement Plan, FY04 – Modified FY06*, at [http://www.guamchamber.com.gu/pdf/new/G\\_HIGHWA.pdf](http://www.guamchamber.com.gu/pdf/new/G_HIGHWA.pdf) (last accessed June 2004).
- Guam DoDEA, Personal Communication with DSO Transportation Coordinator (March 2004).
- Guam Energy Office, Director Fred Camacho, Welcome Statement to Internet Site Visitors (No Date), at [http://wire0.ises.org/wire/doclibs/GCREI.nsf/id/8A3C2BF79E9DB3E0C12568B2005873AA/\\$File/Guam.pdf](http://wire0.ises.org/wire/doclibs/GCREI.nsf/id/8A3C2BF79E9DB3E0C12568B2005873AA/$File/Guam.pdf) (last accessed June 2004).
- Guam Environmental Protection Agency. *Air Pollution Control Program*, at <http://www.guamepa.govguam.net/programs/air/poll.html> (last accessed June 2004).
- Guam Environmental Protection Agency. *Guam EPA Permit Guidebook*, at <http://www.guamepa.govguam.net/permits/guidebook.html> (last accessed June 2004).
- Guam Power Authority. *Generation Mix and System Peaks Data*, at <http://www.guampowerauthority.com/Gen/GenMix.php> (last accessed June 2004).
- Institute of Transportation Engineers. *Trip Generation: An Informational Report*. Transportation Research Board, National Academy of Sciences, Washington, D.C. (January 1980).
- Julian Ng, Inc. *Traffic Assessment for the Construction of Guam High School, Naval Hospital Complex, Hagåtña, Guam, and CDR William C. McCool Elementary/Middle School, Sumay Housing Area, Apra Harbor Naval Complex, Guam* (May 2004).
- Kurashina, H. and R.N. Clayshulte. Site Formation Processes and Cultural Sequence at Tarague, Guam, *Bulletin of the Indo-Pacific Prehistory Association* 4 (1983).
- Lauter-Reinman, Gloria. *Final Report: Management Plan for World War II Resources at Navy Installations in Guam*. Prepared in Conjunction with Department of Defense Legacy Resource Management Program: #349. Prepared for Department of the Navy, Pacific Division, Honolulu. Prepared by Ogden Environmental and Energy Services Co., Inc., Honolulu (1997).

- Lauter-Reinman, Gloria. *Final Report: Cultural Resource Management Plan for the Apra Harbor Naval Complex, Guam*. Prepared for Department of the Navy, Pacific Division, Honolulu. Ogden Environmental and Energy Services Co., Inc., Honolulu (1997).
- Moore, Darlene R., Rosalind L. Hunter-Anderson, Judith R. Amesbury and Eleanor F. Wells. *Archaeology at Chalan Piao, Saipan*. Jose Cabrera and Historic Preservation Office, Department of Community and Cultural Affairs, Saipan, CNMI (1992).
- NRHP (National Register of Historic Places). *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15. U.S. Department of the Interior, National Park Service, Interagency Resources Division, Washington, D.C. (1991).
- Ogden Environmental and Energy Services Co., Inc. *Cultural Resources Management Overview Survey, U.S. Naval Activities, Guam Waterfront Annex, Mariana Islands, Territory of Guam* (August 1996).
- OPNAVINST 5090.1B CH-4. *Navy Environmental and Natural Resources Program Manual* (Jun 2003), at <http://neds.nebt.daps.mil/5090.htm> (last accessed June 2004).
- OPNAVINST 11010.36B. *Air installations Compatible Use Zones (AICUZ) Program* (December 2002).
- Pacific Division, Naval Facilities Engineering Command. *Guam Land Use Plan Update, GLUP 94*. Commander in Chief, U.S. Pacific Fleet (CINCPACFLT) and Commander Pacific Air Forces (PACAF) (April 1995).
- Palomo, Tony. *An Island in Agony* (1984).
- Sherlock, Smith and Adams, Inc. and Altarum. *Site Alternative Analysis and Facility Assessments, Medical Facilities Master Planning Study for Naval Hospital, Branch Medical Clinic, and Branch Dental Clinic Guam, Mariana Islands, USA*, Vol. 2 (March 2004).
- Sherlock, Smith and Adams, Inc. and Altarum. *Master Plan Recommendations and Project Book, Medical Facilities Master Planning Study for Naval Hospital, Branch Medical Clinic, and Branch Dental Clinic Guam, Mariana Islands, USA*, Vol. 3 (March 2004).
- Spoehr, A. Marianas Prehistory: Archaeological Survey and Excavations on Saipan, Tinian, and Rota. *Fieldiana Anthropology* 48. Natural History Museum, Chicago (1957).
- U.S. Census Bureau, *Census 2000 Data for Guam* (2000).
- U.S. Central Intelligence Agency, *2003 World Fact Book* (2003).
- U.S. Environmental Protection Agency. Federal Register Environmental Documents. *Record of Decision for the Disposal and Reuse of Surplus Navy Property Identified in the Guam Land Use Plan (GLUP '94)* (1994).
- Wiebe, Dr. Robert. VA Sierra Pacific Network. Personal letter (24 February 2004).
- World Health Organization. *Data on Electromagnetic Fields (EMF)*, at <http://www.who.int/peh-emf/about/WhatisEMF/en/> (last accessed June 2004).

Yoklavich, Ann and John L. Craib. *Final Report: Cultural Resources Overview Survey at Naval Air Station Agana, Guam*. Department of the Navy, Pacific Division, Naval Facilities Engineering Command. Ogden Environmental and Energy Services Co., Inc. (1997).

## 7.0 LIST OF PREPARERS

### NAVFAC PACIFIC

#### Environmental Planning Division

Supervisory Environmental Engineer	Connie Chang, P.E. M.S. Mechanical Engineering
Environmental Engineer	Paulette Chang, P.E. M.S. Civil and Environmental Engineering

#### **Helber Hastert & Fee, Planners**

Principal EA Author/Project Manager	Thomas A. Fee, AICP M.A. Urban Planning
Contributor/Planner	Scott Mowery, J.D. M.S. Oceanography

## **APPENDIX A**

### **National Historic Preservation Act Section 106 Correspondence**



**Felix P. Camacho**  
*Governor*

**Kaleo S. Moylan**  
*Lt. Governor*

**Department of Parks and Recreation**  
*Dipattamenton Plaset Yan Dibuetision*  
Government of Guam  
490 Chalan Palasyo Road  
Agana Heights, Guam 96910

Director's Office: (671) 475-6296/7  
Facsimile: (671) 477-0997  
Parks Division: (671) 475-6288/89  
Guam Historic Resources Division:  
(671) 475-6294/95  
Fax No. 477-2822



**Thomas A. Morrison**  
*Director*

**Gregory A. Matanane**  
*Deputy*

July 20, 2004

Karen C. Sumida  
Acting Head, Environmental Engineering Dept.  
Department of the Navy  
Pacific division  
Naval Facilities Engineering command  
258 MAKALAPA DR., Suite 100  
Pearl Harbor, HI 96260-3134

Subject: Final Archaeological Monitoring and Discovery Plan in Support of McCool  
Elementary/Middle School Construction, Apra Harbor Naval Complex, Guam  
GHRD Reference No: RC2004-056 (F)

Dear Ms. Sumida:

We have reviewed your final monitoring and discovery plan for the proposed McCool  
Elementary/Middle School Construction in Apra Harbor Naval Complex, Guam and have the  
following comments.

The plan addresses everything that we expect in a monitoring and discovery plan. The subsequent  
archaeological report of the monitoring should meet our reporting requirements if the plan is  
properly followed. We look forward to seeing the end result of the monitoring work.

Thank you and if you have any questions please call Mr. Vic April, Territorial Archaeologist or  
myself at (671) 475-6294/5.

Sincerely,

**LYNDA B. AGUON**  
Guam (State) Historic Preservation Officer



## DEPARTMENT OF THE NAVY

PACIFIC DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
258 MAKALAPA DR., STE. 100  
PEARL HARBOR, HI 96860-3134

5750.5N2  
Ser ENV1833/ 978

16 JUN 2004

## CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Lynda B. Aguon  
Guam Historic Preservation Officer  
490 Chalan Palasyo  
Agana Heights, GU 96910

Dear Ms. Aguon:

Subj: FINAL ARCHAEOLOGICAL MONITORING AND DISCOVERY PLAN IN  
SUPPORT OF MCCOOL ELEMENTARY/MIDDLE SCHOOL  
CONSTRUCTION, APRA HARBOR, NAVAL COMPLEX, GUAM

Thank you for your letter of May 20, 2004, which provides your review comments on the draft of the subject document. Suggested revisions have been incorporated into the final plan, and is submitted for your records and use [enclosure (1)]. This plan will be implemented in support of the proposed construction of the Commander William C. McCool Elementary/Middle School.

If you have any questions concerning enclosure (1), our point of contact is Ms. Annie Griffin at DSN 474-4887, by facsimile transmission at (808) 474-5909 or by E-Mail at [annie.griffin@navy.mil](mailto:annie.griffin@navy.mil), or Ms. Emily Donaldson at DSN 474-5921 or by E-Mail [emily.donaldson@navy.mil](mailto:emily.donaldson@navy.mil).

Sincerely,

A handwritten signature in black ink, appearing to read "Karen C. Sumida".

KAREN C. SUMIDA  
Head  
Environmental Engineering Department  
Acting

Encl:

- (1) Final Archaeological Monitoring  
and Discovery Plan in Support of  
McCool Elementary/Middle School  
Construction, Apra Harbor Naval  
Complex, Guam

SENT BY:

5-20- 4 ; 4:14PM ;

GUAM HPO/DPR→

8084745909;# 2



Felix P. Camacho  
Governor

Kaleo S. Moylan  
I.A. Governor

**Department of Parks and Recreation**  
**Dipattamenton Plaset Yan Dibuetsion**  
**Government of Guam**  
490 Chalan Palasyo  
Agana Heights, Guam 96910  
Director's Office: (671) 477-6896/97  
Facsimile: (671) 477-0997  
Parks Division: (671) 475-6288/89  
Historic Resources Division: (671) 475-6294/95



Thomas A. Morrison  
Acting Director

Gregory A. Matanane  
Deputy

May 20, 2004

Leighton G.M. Wong  
Acting Head  
Environmental Engineering Department  
Department of Navy  
Pacific Division  
Naval Facilities Engineering Command  
258 Makalapa Dr., Ste. 100  
Pearl Harbor, HI 96860-3134

Attn: Annie Griffin

Subject: Guam SHPO review of "Archaeological Monitoring and Discovery Plan for the McCool Elementary/Middle School Construction Project, Apra Harbor, Naval Complex, Guam.  
GHPO Reference No. RC 2004-056

Dear Mr. Wong,

Thanks for sending the draft of the Archaeological Monitoring and Discovery Plan for the McCool Elementary/Middle School Construction Project. After reviewing it there are some minor corrections and clarifications, otherwise it is acceptable for implementation.

✓ On page 1, Introduction, line 1 has Marianas Islands. The "s" needs to be dropped from "Marianas" when it is followed by "Islands." In line 3 there is an odd reference to Ulithi as the nearest landfall to Guam. We are not sure where this comes from or why it is referenced as such.

On page 6, Professional Qualifications, line 2 we have obtained clarification on "direct supervision" from Western Regional Office, and the person who meets the Secretary of the Interior's Professional Qualifications Standards needs to be available on Guam during the time that the monitor who does not meet the qualifications is in the field. Please stipulate that this will be followed.

Last, in the Procedures section, a subsection needs to discuss the treatment of human remains in the event these are encountered pursuant any federal requirements and pursuant Guam Department of Parks and Recreation General Guidelines for Archaeological Burials.

These are our comments, if you have any questions please do not hesitate to call me, Rich Olmo, or Vic April.

Sincerely,

LYNDA B. AGUON  
Guam (State) Historic Preservation Officer

Cc: Emily Donaldson



**Felix P. Camacho**  
Governor

**Kaleo S. Moylan**  
Lt. Governor

**Department of Parks and Recreation**  
**Dipattamenton Plaset Yan Dibuetision**  
Government of Guam  
490 Chalan Palasyo  
Agana Heights, Guam 96910  
Director's Office: (671) 477-6896/97  
Facsimile: (671) 477-8997  
Parks Division: (671) 475-6288/89  
Historic Resources Division: (671) 475-6294/95



**Thomas A. Morrison**  
Acting Director

**Gregory A. Matanane**  
Deputy

March 5, 2004

Roy Tsutsui  
Regional Environmental Manager  
Department of the Navy  
Commander, U.S. Naval Forces Marianas  
PSC 455, Box 152  
FPO AP 96540-1000

**Subject:** "Commander William C. McCool Elementary/Middle School" notification of undertaking  
*GHPO Reference: RC2004-056*

Dear Mr. Tsutsui,

We have reviewed the above referenced Notice of No Effect, and associated plan drawings. In addition, we have referred to the discussion entitled *Interring Japanese* (Carucci, 1993:82). Based on the information contained in that discussion and in consideration of the recent discovery of human remains at the corner of Orote Point Drive and San Luis Road we are recommending caution with respect to future development in this area and consider a finding of no effect not appropriate for this project. While this parcel has been repeatedly developed since WWII, most recently with the construction of Lockwood Homes, all of this construction has taken place prior to the systematic investigation of and monitoring for historic resources. In light of the possibility of additional WWII-aged burials associated with mass graves, defensive trenches and gun positions, we are requiring the presence of an archaeological monitor during ground disturbing development activities on the parcel.

Please submit a monitoring and discovery plan for our review prior to the demolition of existing structures. If you have any questions or need additional information, please do not hesitate to contact Vic April, Territorial Archaeologist, or Richard Olmo, staff archaeologist at 475-6294/5. Thank you for providing us with the notification.

Sincerely,

**LYNDA B. AGUON**

Guam (State) Historic Preservation Officer

**Cc:** Jennings Bunn, Regional Cultural Resources Manager

A-19-04:11117

1339 4363

# 3/ 4



## DEPARTMENT OF THE NAVY

COMMANDER, U.S. NAVAL FORCES MARIANAS

PSC 455, BOX 152  
FPO AP 96540-1000

IN REPLY REFER TO:

5090  
Ser N45/0125  
February 11, 2004

Ms. Lynda B. Aguon  
Guam State Historic Preservation Officer  
Guam Historic Resources Division  
490 Chalan Palasyo  
Agana Heights, GU 96910

Dear Ms. Aguon:

This is notification of the proposed undertaking "Commander William C. McCool Elementary/Middle School" construction project to be located on previously cleared land adjacent to the Lockwood housing area on Orote Peninsula. A location map, site analysis, site project plan, and site photos are provided as enclosures (1) through (4), respectively. Orote peninsula archeological surveys, identification of historic properties and eligibility determinations for National Register of Historic Places (National Register) are available in the Cultural Resources Management Plan for the Apra Harbor Naval Complex, Guam, (CRMP) August 1998 prepared for the Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii 96860-7300 and approved by your office. The CRMP showed no significant cultural resources within the proposed project site. Recent pedestrian validation surveys by Mr. Jennings Bunn, Jr., Regional Cultural Resources Manager, of the proposed site and adjacent areas confirmed no historic properties listed on the National Register within the proposed site. Site analysis shows several historic properties outside the proposed project boundary and a destroyed site, listed on the Guam Register of Historic Places called "former Marine Barracks site, Naval Station" (Guam Register number 66-03-10363) within the proposed project site. No original remains exist of the former Marine Barracks site due to alteration by extensive WWII bombing and clearing from development soon after WWII. A still existing stone column built after the end of the war in the general area of the former Marine Barracks contained a replica plaque of the original Marine Barracks plaque. The CRMP explains why the stone column, replica plaque and original plaque (relocated to a museum) are not eligible for the National Register although the stone column is listed on the Guam Register as number 66-03-1036.

Although the CRMP classified the former Marine Barracks site as not eligible for the National Register, the Navy recognized the intrinsic value of the site and its events with a monument that was installed in the vicinity. Moreover, we have included plans for a small memorial park around that monument as part of the proposed undertaking. Having the proposed school include and maintain a memorial park for the former Marine Barracks site is beneficial to the learning institute, its students, all visitors, and the Orote historic complex.

We have complied with 36 CFR 800.4 (b) & (d)(1) for this proposed undertaking and have determined that the proposed project area has no historic properties and the proposed undertaking will have no effect

3-19-04;11:17 :

; 339 4383

# 4 / 4

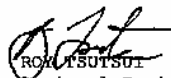
5090  
Ser N45/0125  
February 11, 2004

{as defined in Section 800.16(1)} upon the identified historic properties outside the project boundary.

Ms. Annie Griffin, Naval Facilities Engineering Command Pacific Division, is the professional archeologist for this proposed undertaking and will be assisted by Mr. Bunn's field monitoring.

This letter is submitted in accordance with our Section 106 responsibilities as required by the National Historic Preservation Act of 1966, as amended. We request your concurrence of our determination of "No Historic Properties Effectuated". Should you require additional information, please contact Mr. Bunn, at 339-8194 or via email: [n455@guam.navy.mil](mailto:n455@guam.navy.mil).

Sincerely,



ROM TSUTSUI  
Regional Environmental Manager  
By direction of the Commander

Enclosures: 1. Location Map  
2. Site Analysis  
3. Project Site Plan  
4. Site Photos

## **APPENDIX B**

### **Archaeological Monitoring and Discovery Plan**

ARCHAEOLOGICAL MONITORING AND DISCOVERY PLAN  
IN SUPPORT OF MCCOOL ELEMENTARY/MIDDLE SCHOOL  
CONSTRUCTION, APRA HARBOR NAVAL COMPLEX, GUAM

**Department of the Navy**  
Pacific Division  
Naval Facilities Engineering Command  
Pearl Harbor, Hawaii 96860-3134

Prepared by:

Annie Griffin, Supervisory Archaeologist  
Emily Donaldson, Staff Archaeologist

June 2004



## ***EXECUTIVE SUMMARY***

Department of the Navy, Pacific Division, Naval Facilities Engineering Command has consolidated all available information on the proposed project location for the Commander William C. McCool Elementary/Middle School within the Sumay Housing area at the Apra Harbor Naval Complex, Guam. The resulting document is an Archaeological Monitoring Plan (AMP). As required under Section 106 of the National Historic Preservation Act, this AMP will be implemented in support of this project.

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
INTRODUCTION .....	1
PURPOSE .....	1
HISTORY AND PREVIOUS ARCHAEOLOGY .....	1
HISTORIC SITES .....	4
ANTICIPATED FINDINGS.....	6
PROFESSIONAL QUALIFICATIONS .....	6
PROCEDURES .....	7
Monitoring .....	7
Notification and Consultation .....	7
Inadvertent Discovery of Human Remains .....	7
<i>Preservation In-Place</i> .....	8
<i>Disinterment and Reinterment</i> .....	9
Data Collection .....	9
Laboratory Analysis .....	10
Reporting .....	10
Collections Management .....	10
PLAN REVISION .....	10
REFERENCES CITED .....	11
APPENDIX A: Guam SHPO Response Letter .....	12

## LIST OF FIGURES

Figure 1: Guam Districts .....	2
Figure 2: McCool Elementary/Middle School Construction Project Area .....	3
Figure 3: McCool Elementary/Middle School Landscape Plan .....	3

## **INTRODUCTION**

The Territory of Guam is the southernmost island in the Mariana Islands chain, an archipelago in the northwest corner of Micronesia which also contains Tinian and Saipan (Figure 1). This AMP concerns itself with the Lockwood Housing Area, inside the Apra Harbor Complex.

## **PURPOSE AND APPLICABILITY**

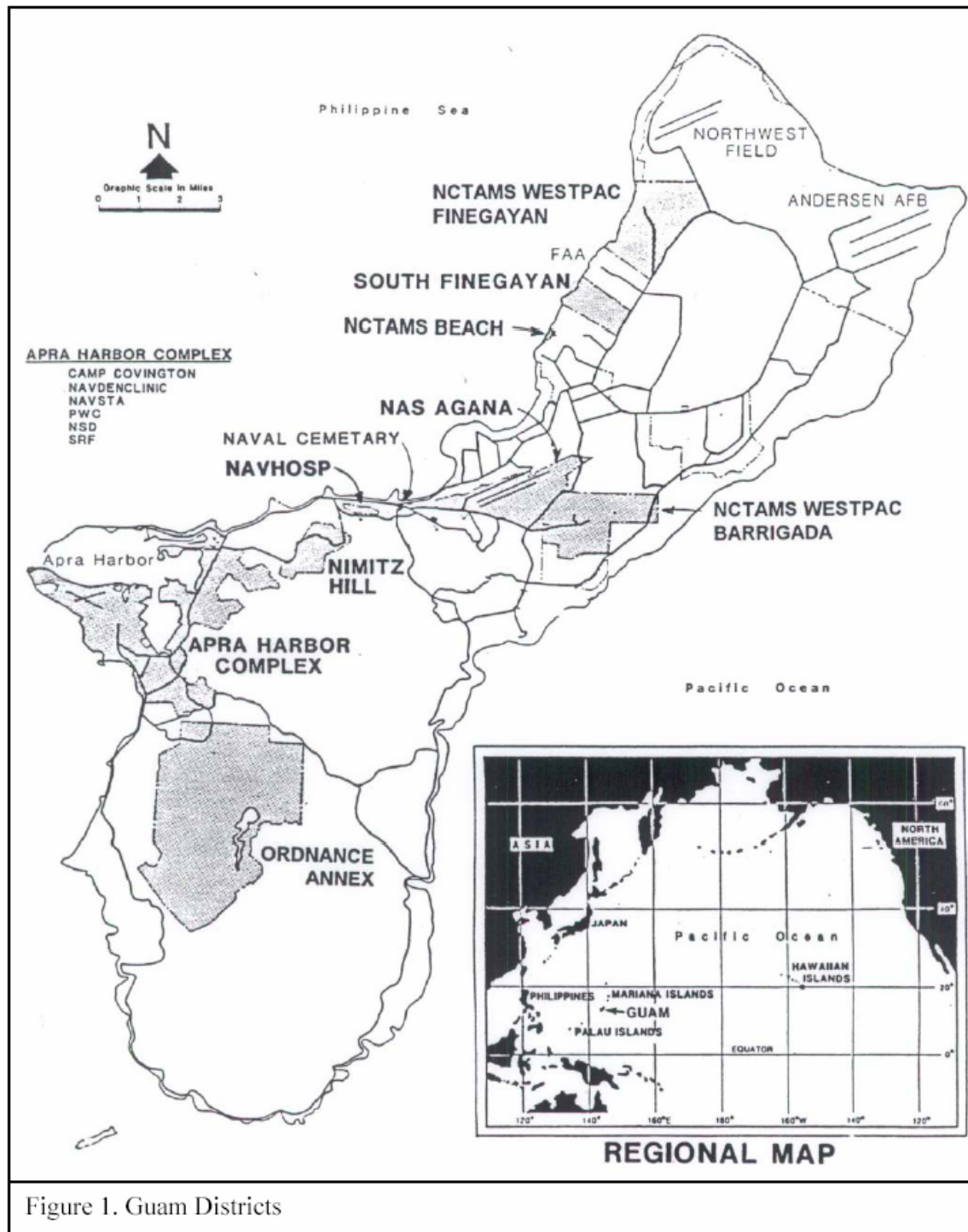
The purpose of this archaeological monitoring plan is to establish a set of procedures to support the construction of the McCool Elementary/Middle School in the Lockwood Housing Area at Apra Harbor (Figures 2 and 3). Anticipated ground disturbing activities include, but are not limited to, trenching for utilities and construction-related excavations.

Section 106 consultation with the Guam State Historic Preservation Officer (SHPO) (Appendix A) required the preparation and implementation of an AMP during construction at the Project Area.

## **HISTORY AND PREVIOUS ARCHAEOLOGY**

Studies conducted by a number of archaeologists have set the estimated date for human arrival to the islands between 3000 and 3500 B.P. (Spoehr 1957; Kurashina and Clayshulte 1983; Athens 1986; Bonhomme and Craib 1987; Moore et al. 1992; Butler 1993; Craib 1993). Population levels during this first so-called Early Period of settlement were low and dispersed, leaving behind a fairly meager amount of cultural material. Archaeological records from later periods document the presence of shallow, open pottery bowls and pans (Transitional Period, 2000-800 B.P.) and latte, fish gorges made of shell, and other materials including basalt adzes and mortars (Latte Period, 800-250 B.P.).

For the past 400 years, the islands have been under foreign control. Magellan arrived there over 470 years ago. Under Spanish occupation the indigenous Chamorro culture underwent drastic change and population decline, as the Marianas became a leading port of call along their trade-route to Manila. During the Spanish-American War Guam was captured by the U.S., in 1898, and became a remote outpost for the U.S. Navy. Agaña remained the principal settlement on the island during this time, and Sumay was one of the primary locations chosen for military installations. The strategic position of Guam in



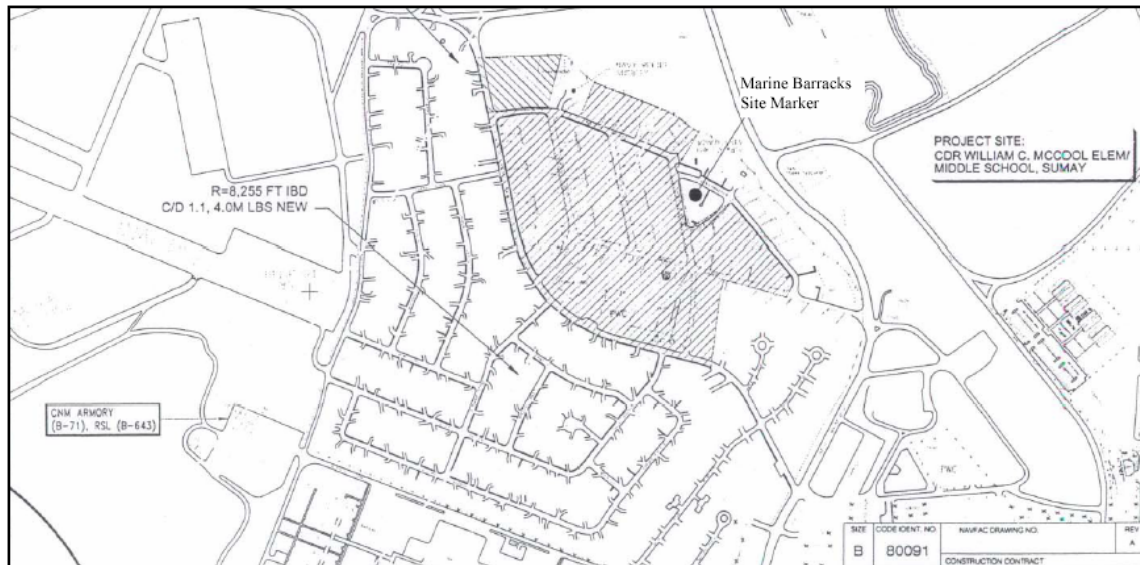


Figure 2. McCool Elementary/Middle School Construction Project Area (Shaded)

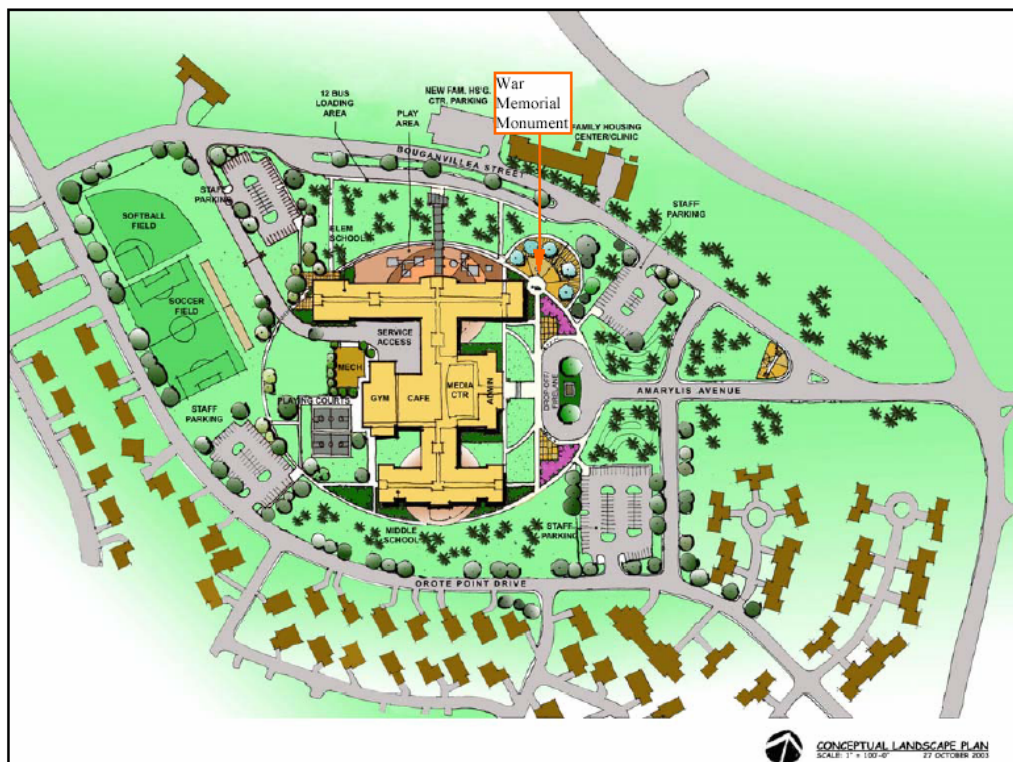


Figure 3. McCool Elementary/Middle School Landscape Plan

particular lent it to use as a U.S. coaling port at the beginning of this century, and subsequently as a port-of-call for Pan American Airlines' first trans-Pacific air route. By 1941 Sumay had become the commercial, communications, and transportation center for Guam.

Japan invaded Guam on 10 December 1941, converting the island into their own military outpost held by 400 naval militia men. In the summer of 1944, after a prolonged period of naval and air bombardment lasting three weeks, the U.S. recaptured the island. This island went on to play an important role in the Allied push towards Japan during the latter stages of World War II, becoming a major staging area for military operations in the Pacific. Following the war Guam's government was transferred from the Navy to the Department of the Interior, and the island became an unincorporated Territory of the United States.

## **HISTORIC SITES**

In the early 1920s the United States Marines established a seaplane base at Sumay, with the arrival of a Marine Flight Squadron comprised of 10 pilots and 90 enlisted men. In the same year the headquarters of the Marine Barracks and most of the troops were relocated from Agana to Sumay, and permanent barracks were built to house them. Both Scouting Squadron One and the Marine Barracks were located on a bluff overlooking Sumay and Apra Harbor, with Scouting Squadron One situated seaward of the barracks. The base at Sumay was in operation until 1931 when the U.S. decided to demilitarize Guam. It was here that the first Japanese bomb fell in 1941, striking near the commanding officer's office at Marine Barracks.

The Marine Barracks Plaque installed to honor this site was possibly one of the most famous symbols of Guam's subsequent recapture three years later, and was located within the APE of the proposed undertaking. However, the plaque has since been removed. Marines who, in 1944 recaptured the old Marine Barracks, found the old marker in the rubble and proudly displayed their trophy for photographers. The plaque was later relocated to Building 15A on a concrete upright until the Marines loaned it out to the Guam Navy Museum, where it continues to reside today. A stone column constructed at the site of the former Marine Barracks after the end of the war contains a plaque similar to the original, and reads "Semper Fi—Site of Old Marine Barracks, Oct. 1921 – Dec. 1941, Guam." A second marker placed below it states, "In memory of the Marines who gave their lives to liberate the island of Guam on July 21, 1944." This monument was assigned the Guam site inventory number, 66-03-1036. It is located at the corner of Hibiscus and Mimosa Street, in Lockwood Housing (*Management Plan for World War II Resources at Navy Installations in Guam*, 1997).

Along the northeast perimeter of the Project Area is the Japanese Sumay Caves Area, located near the old Sumay Cemetery. A Japanese delegation in charge of locating burials in 1975 were unable to find any remains at this location, since the area in which they were looking had been covered with rubble pushed over the cliff during construction of the dental clinic above. However, human remains of two individuals were reported by hikers here in 1987. According to informants, the Japanese put the sick and wounded in caves in the vicinity during the United States' recapture of Guam in 1944. When, in the end, there was no possibility of surviving and they were out of supplies doctors are said to have euthanized these individuals by injection. The bodies were then apparently buried.

The caves were evidently sealed after the recapture of Guam, and while some have remained sealed others have opened up due to weathering and erosion. The area has undergone bulldozing and modification from road widening activities along Marine Drive. Nevertheless, some remains of caves are visible on the west side of Marine Drive below the Dental Clinic, while others are believed to exist on the steep terrain on the east side of the road. The caves are said to show signs of modification for a defense system, while artifacts found there attest to their use during WWII. A Chamorro informant recounted how he helped to dig a deep hole on the side of the hill next to the Sumay Cemetery, which the Japanese then used as an underground radio communication center.

A Japanese mass grave site (Site 66-03-1092) is located near the junction of San Luis Road and Orote Point Road, roughly 400 feet to the northwest of the Project Area, in what is now Lockwood Housing at Waterfront Annex. Hundreds of Japanese were killed in this area during WWII, during the battle for Orote Peninsula. Due to the speed of decomposition in the tropical environment, it was necessary to bury the dead as soon as possible. This mass burial was performed in extreme haste and no records have been found disclosing the exact extent or locations of the burials. Former Marines recall the hillside being covered with bodies, and the necessity of burial being so pressing that burials were dug no deeper than a bulldozer scoop. One eye witness, Jesus C. Lizama, estimates the number of dead to be over 200 and the extent of the burial area at approximately 300 square feet. In 1953 the Japanese Self Defense Force erected a boulder here to commemorate the site and those Japanese that died in the battle. The inscription on the boulder reads in Japanese, "Marker of Japanese war dead erected 1953 by the Japanese." The boulder was relocated to the South Pacific Memorial Park in Yigo in 1972, at the request of the Japanese Consulate.

Recent sewer line trenching conducted in March 2004 at the corner of Orote Point Drive and San Luis Road, adjacent to the mass burial site, encountered a fill layer containing fragments of human bones in good condition. These bones consisted of an ulna shaft, a humerus shaft, a tibia shaft, a long bone shaft, and the distal end of a humerus. All of the bones are suspected to come from a red-brown, loose, friable clay layer approximately 40 cmbd. Several pre-WWII items

were observed such as shrapnel, broken glass, bits of wood, a plastic toothbrush fragment, a plastic comb fragment, and a small piece of blue-on-white porcelain. Some possible food debris consisting of 3 whole and 2 fragmentary *Anadara antiquata* shells were also discovered. These materials were all located within 70 cm of the surface. No prehistoric artifacts were found. It was noted that the bones were disarticulated and do not comprise a full skeleton, while only 20<sup>th</sup> century artifacts were observed in their vicinity. For this reason it is possible the soil used for this fill originated from Japanese excavations to recover and repatriate remains from the nearby mass burial site, in 1975. It is guessed that during these excavations some of the bones were possibly missed, and remained in the soil which was subsequently utilized in the landscaping of the neighboring housing area.

### **ANTICIPATED FINDINGS**

Based on archival and past archaeological investigations, various cultural remains may be discovered over the course of excavations. While the parcel has been repeatedly developed since the conclusion of WWII, all construction there took place prior to the systematic investigation of and monitoring for historic resources in Guam. Thus, it is possible that additional WWII-age burials associated with mass graves, defensive trenches, and gun positions may be discovered over the course of ground-disturbing activities in the Project Area. *In situ* human remains are not expected in this area. However, if any remains are recovered then the procedures as outlined in the this plan shall be followed, and the Navy will be responsible for consultation.

### **PROFESSIONAL QUALIFICATIONS**

The Navy will ensure that archaeological monitoring is carried out by an archaeologist who meets the professional qualifications set forth by 36 CFR §61 and the Secretary of the Interior's Historic Preservation Professional Qualifications Standards for Archaeologists (Federal Register, Vol. 48: 44738-44739, of September 29, 1983). In cases where monitoring must be conducted by someone who does not meet the above qualifications, an individual who does so will be available on Guam during the time that said monitor is in the field.

In coordination with the Officer in Charge of Construction (OICC), the monitoring archaeologist will have the authority to suspend ground-disturbing activities and direct the activity to proceed elsewhere, whenever human remains or significant archaeological resources are encountered.

## **PROCEDURES**

### **Background Research**

The archaeologist will conduct pre-fieldwork research, including a review of any previous archaeological studies done in the vicinity of the project areas.

### **Notification and Consultation**

1. If cultural remains are discovered, construction activities in the immediate area of the find will immediately stop and the remains will be protected from further damage. All cultural remains found in the excavated material will be collected.
2. Notify the Guam SHPO and the COMNAVMARIANAS Cultural Resource Manager (N455) within 24 hours of the finding and provide Guam SHPO with the following information: identification of the remains (if possible) and the context of the finding, whether an intact feature or disturbed soil. Guam SHPO will be given the opportunity to conduct a site visit, and will be informed if there are time constraints.
3. Navy and Guam SHPO will seek to mutually agree if future notification and site visits are necessary in case of additional discoveries.

### **Inadvertent Discovery of Human Remains**

The following section provides a plan of action for the inadvertent discovery of human remains in the McCool School Project Area. Please refer to Appendix B for further and more detailed information on this topic.

If human remains or remains which are potentially human are inadvertently discovered during the course of the McCool School construction, the following steps shall be taken:

1. Work shall stop in the immediate area, the area will be secured, the remains will be covered to protect them from the sun/elements, and the COMNAVMARIANAS Cultural Resource Manager (CRM) N455 shall be notified immediately.
2. The CRM shall contact the Guam SHPO and Naval Criminal Investigative Service (NCIS) to arrange for a site visit by a representative of each agency within three working days of the discovery.
3. The remains will not be moved until a qualified professional appointed by the CRM has the opportunity to determine whether they are recent remains under the jurisdiction of police authorities, or whether they are historic remains (older than 50 years in age). This determination shall be

- made within two working days of the discovery. If they are recent remains, the NCIS shall assume responsibility and the Guam Police Department shall be notified.
4. If the remains are historic, a designated professional archaeologist will document the context of the remains, burial features, grave goods, and attempt to establish the ethnic identity of the remains with minimal disturbance.
  5. If the remains appear likely to be those of a U.S. military personnel, the Joint POW-MIA Accounting Command-Central Identification Laboratory (JPAC-CIL) will be notified; alternatively, if they appear to be World War II Japanese, the Consulate General of Japan, Agana, Guam shall be notified; finally, if they appear to be World War II Chamorro the Office of Veteran Affairs and the Office of Community Affairs shall be notified. In the event that the remains are associated with another ethnicity not cited here, cannot be associated with a specific ethnicity, or are from the period of pre-European contact, the CRM shall determine their treatment in consultation with the Guam SHPO. Notification will indicate pertinent information as to the kinds of human remains, funerary objects, sacred objects, or objects of cultural patrimony, their condition, and the circumstances of their inadvertent discovery.
  6. If the CRM, Guam SHPO, and the appropriate consulting parties agree upon an alternative action whereby construction activities avoid disturbance to the remains, the procedures outlined in the preservation in-place section of this AMP (below) shall be followed.
  7. If the remains are threatened by construction and cannot be preserved in-place, they will be disinterred in accordance with the disinterment section of this AMP (below).
  8. Steps 1-5 (above) will be executed within 7 working days of discovery, and with the professional support of NAVFAC EFD PACIFIC if necessary.
  9. Excavation and construction in the area shall resume only following consultation on damage mitigation and alternative action, between the CRM, Guam SHPO, and any other organizations designated relevant as above.

#### Preservation In-Place

When human remains are discovered and can be preserved in-place, the following steps will be taken:

- The remains and any associated artifacts shall be recorded *in situ* by a qualified professional appointed by the CRM and in consultation with the Guam SHPO. Additional laboratory tests shall be conducted at the discretion of COMNAVMARIANAS. A report of the field methods and findings shall be produced within 90 days of field work.
- The remains will be covered up in their original manner as indicated by the archaeological findings (e.g. with sand, with stone platform, etc.), and to a

depth suitable to prevent impacts from erosion.

- The remains will be protected as determined appropriate by the CRM, Guam SHPO, or the appropriate organizations deemed relevant above.
- As considered necessary by any of the consulting parties, an appropriate ceremony may be accommodated.

### Disinterment and Reinterment

When the disinterment of human remains is deemed necessary, the following steps will be taken:

- A qualified professional designated by the CRM, in consultation with the Guam SHPO, will excavate and record the remains and any associated artifacts. Additional laboratory tests may be performed, at the discretion of COMNAV Marianas in consultation with the Guam SHPO.
- Remains and associated artifacts shall be subject to laboratory analysis by a physical anthropologist in order to determine the age, sex, and number of persons for the skeletal material, and by an archaeologist for the full recordation of associated artifacts. No tests involving damage to the skeletal material shall be performed.
- If they are determined to be prehistoric Chamorro, the remains and any associated artifacts shall be curated at the laboratory until reburial can be arranged. The site and means of reburial shall be determined by the CRM in consultation with the Guam SHPO. If deemed appropriate, representatives of Native Chamorro groups may also be included in the consultation process. The reburial shall be made public, and any associated expenses shall be borne by the construction project.
- In the event that the ethnicity of the remains cannot be determined, the decision for reburial or curation shall be made by the CRM in consultation with the Guam SHPO.

### **Data Collection**

1. All bones and diagnostic artifacts will be collected for sorting, identification and analysis in the laboratory. For non-diagnostic items, 50% sample of the material will be collected for analysis.
2. Standard field procedures of documentation will be completed for all intact archaeological features, to include but not limited to: description, mapping, and photography. Intact features will be excavated in its entirety and contents will be screened with ¼ inch-screen and retained for laboratory analysis. If intact datable materials such as wood charcoal are found, these will be collected for processing and submitted for analysis.
3. A sample of randomly selected trenches throughout the project area will be recorded, whether or not cultural materials are found. One wall of the

trench will be subject to stratigraphic profile drawing. This information will be used to illustrate the stratigraphy of this section of Orote Peninsula, as well as a predictive model for assessing the potential for encountering cultural remains in the future.

4. All cultural resources, regardless of the context (intact or disturbed), will be documented (described, mapped, photographed).

### **Laboratory Analyses**

All cultural remains collected from the field will be sorted and identified. Standard laboratory procedures will be used to analyze faunal remains and artifacts.

All datable remains such as wood charcoal will be processed and submitted for radiocarbon dating.

### **Reporting**

Information from archaeological monitoring will be presented in a report that includes the following: (1) an abstract; (2) a project overview; (3) background information; (4) a description of fieldwork and the field methods employed; (5) laboratory analyses (6) findings; as well as (7) conclusions and recommendations. A draft of the report will be provided to the Guam Historic Preservation Officer for review and comment. Final report will consider comments received from the Guam SHPO.

### **Collections Management**

At the completion of the project, collected archaeological resources will be clearly labeled, cataloged, and packed for long-term storage. These materials will be stored with a complete and legible set of notes and records, and curated in accordance with 36 CFR §79 by the monitoring archaeologist. Materials stored by the archaeologist are the property of the United States government and will be subject to return in the future.

### ***PLAN REVISION***

This AMP is subject to revision if special project requirements beyond those developed in this document should arise (e.g. hazardous material requirements).

### ***REFERENCES CITED***

Athens, J. Stephen

- 1986 Archaeological Investigations at Tarague Beach, Guam. Prepared for Andersen AFB, Department of the Air Force, APO San Francisco.

Bonhomme, Theresa and John L. Craib

- 1987 Radiocarbon Dates from Unai Bapot Saipan: Implications for Marianas Prehistory. *Journal of Polynesian Society* 96 (1):95-106.

Butler, Brian M.

- 1987 *Archaeological Investigations in the Achugao and Matansa Areas of Saipan, Marianas Islands*. Prepared for Pelley Enterprises, Nansay Micronesia Corporation and the Division of Historic Preservation, Department of Community and Cultural Affairs, Saipan, CNMI.

Craib, J.L.

- 1993 Archaeological Surveys of Military Lease Lands on Tinian for the Partial Mitigation of Adverse Effects in Conjunction with the FY93 Tandem Thrust Training Exercise. Prepared for Department of the Navy, Pacific Division, Honolulu. Ogden Environmental and Energy Services Co. Inc., Honolulu.

Kurashina, H. and R.N. Clayshulte

- 1983 Site Formation Processes and Cultural Sequence at Tarague, Guam. *Bulletin of the Indo-Pacific Prehistory Association* 4.

Moore, Darlene R., Rosalind L. Hunter-Anderson, Judith R. Amesbury and Eleanor F. Wells

- 1992 *Archaeology at Chalan Piao, Saipan*. Prepared for Jose Cabrera and Historic Preservation Office, Department of Community and Cultural Affairs, Saipan, CNMI.

Spoehr, A.

- 1957 Marianas Prehistory: Archaeological Survey and Excavations on Saipan, Tinian, and Rota. *Fieldiana Anthropology* 48. Natural History Museum, Chicago.

Yoklavich, Ann and John L. Craib

- 1997 *Final Report: Cultural Resources Overview Survey at Naval Air Station Agana, Guam*. Prepared for Department of the Navy, Pacific Division, Naval Facilities Engineering Command. Ogden Environmental and Energy Services Co., Inc.

## APPENDIX A



Felix P. Camacho  
Governor

Kaleo S. Moylan  
Lt. Governor

Department of Parks and Recreation  
*Dipattamenton Plaset Yan Dibueision*  
Government of Guam  
490 Chalan Palasyo  
Agana Heights, Guam 96910  
Director's Office: (671) 477-6896/97  
Facsimile: (671) 477-0997  
Parks Division: (671) 475-6288/89  
Historic Resources Division: (671) 475-6294/95



Thomas A. Morrison  
Acting Director

Gregory A. Matanane  
Deputy

March 5, 2004

Roy Tsutsui  
Regional Environmental Manager  
Department of the Navy  
Commander, U.S. Naval Forces Marianas  
PSC 455, Box 152  
FPO AP 96540-1000

Subject: "Commander William C. McCool Elementary/Middle School" notification of  
undertaking  
GHPO Reference: RC2004-056

Dear Mr. Tsutsui,

We have reviewed the above referenced Notice of No Effect, and associated plan drawings. In addition, we have referred to the discussion entitled Interring Japanese (Carucci, 1993:82). Based on the information contained in that discussion and in consideration of the recent discovery of human remains at the corner of Orote Point Drive and San Luis Road we are recommending caution with respect to future development in this area and consider a finding of no effect not appropriate for this project. While this parcel has been repeatedly developed since WWII, most recently with the construction of Lockwood Homes, all of this construction has taken place prior to the systematic investigation of and monitoring for historic resources. In light of the possibility of additional WWII-aged burials associated with mass graves, defensive trenches and gun positions, we are requiring the presence of an archaeological monitor during ground disturbing development activities on the parcel.

Please submit a monitoring and discovery plan for our review prior to the demolition of existing structures. If you have any questions or need additional information, please do not hesitate to contact Vic April, Territorial Archaeologist, or Richard Olmo, staff archaeologist at 475-6294/5. Thank you for providing us with the notification.

Sincerely,

LYNDA B. AGUON

Guam (State) Historic Preservation Officer

Cc: Jennings Bunn, Regional Cultural Resources Manager

## **APPENDIX C**

### **Agency Correspondence**

- Guam Bureau of Statistics and Plans (Coastal Zone Management Act)
- Guam Department of Public Works (Guam High School Traffic)

Aug-18-04 09:06am From-BUREAU OF PLANNING

+6714771812

T-352 P.02/03 F-957

**BUREAU OF STATISTICS AND PLANS**  
**(Bureau of Planning)**  
Government of Guam

Felix Perez Camacho  
Governor of Guam

Kaleo Scott Moylan  
Lieutenant Governor

P.O. Box 2950 Hagåtña, Guam 96932  
Tel: (671) 472-4301/3  
Fax: (671) 477-1812



Manuel Q. Cruz  
Director

AUG 17 2004

Lt. Commander T.P. Scheuermann, USN  
COMNAVMARIANAS  
PSC 455 Box 152  
FPO AP 96540-1000

Dear Lt. Commander Scheuermann

We have completed the review of the Negative Determination that you had submitted for the construction of a new Guam High School and a new Commander William C. McCool Elementary/Middle School to replace the existing school facilities.

We understand that:

- 1). The new Guam High School will be located at the Naval Hospital Complex on approximately 23 acres of Navy land at the Naval Hospital Complex in Agaña Heights. The two-story proposed facility is designed to accommodate approximately 500 high school students and will include such amenities as classrooms, offices, computer labs, library, athletic facilities, cafeteria, and a back-up generator. The proposed construction of the new High School will provide for future classroom building expansion to accommodate up to 650 students and will require demolition of 20 family housing units.
- 2). The new Commander William C. McCool Elementary/Middle School will be located in Orote at the former Sumay area within the Apra Harbor Naval Complex. The proposed school complex will include a two-story facility that would accommodate approximately 850 students. There will be separate elementary and middle school educational clusters, but combined administrative offices and primary use areas, playgrounds, athletic facilities, cafeteria, and a back-up generator. The new school facility will also provide for future classroom building expansion to accommodate up to 1,100 students.

It is our understanding in your Negative Determination that, the Navy already has completed an "effects" test and has determined that there are no reasonable effects to Guam's Coastal Management Program based on the scope of the activity.

As part of our review process requirement, we solicited other government agencies for their review and input within their respective agencies mandates. The Guam Environmental Protection Agency (GEPA) did not object to the project proposal(s) and the Department of Parks and Recreation (DPR) has already been in consultation with the U.S. Navy and has granted a "No Historic Properties Affected" Determination.

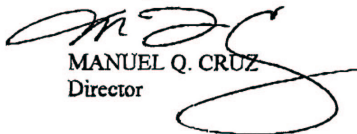
Aug-18-04 09:06am From-BUREAU OF PLANNING

+6714771812

T-352 P.03/03 F-957

Based on our own review of the submitted documents and the coordination efforts between the Navy and the Government of Guam, we concur with your findings of "Negative Determination" and, therefore, no further filing for Federal Consistency is needed for the above proposed projects, as provided in the Coastal Zone Management Act of 1972 (P.L. 92-583) as amended (P.L. 94-370, P.L. 104-150, the Coastal Zone Protection Act of 1996). However, please note that this GCMP concurrence with your Negative Determination does not fully preclude the need to obtain other Federal and Government of Guam concurrence and approvals, such as the Department of the Army Corps of Engineers permit, etc.

Sincerely,



MANUEL Q. CRUZ  
Director

cc: GEPA  
DoAg  
DPR/GHPO  
ACOE/Frank Dayton



**DEPARTMENT OF THE NAVY**  
COMMANDER, U.S. NAVAL FORCES MARIANAS  
PSC 465, BOX 152  
FPO AP 96540-1000

IN REPLY REFER TO:  
5090  
Ser N45/0469  
24 May 04

Mr. Manuel Cruz  
Director  
Bureau of Statistics and Plans  
P.O. Box 2950  
Hagatna, GU 96932

Dear Mr. Cruz:

SUBJECT: NEGATIVE DETERMINATION FOR THE PROPOSED CONSTRUCTION  
OF COMMANDER WILLIAM C MCCOOL ELEMENTARY/MIDDLE SCHOOL  
AT THE APRA HARBOR NAVAL COMPLEX AND GUAM HIGH SCHOOL  
AT U.S. NAVAL HOSPITAL

The Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) has proposed a federal agency activity located on federally owned lands within the Apra Harbor Naval Complex and the U.S. Naval Hospital. This letter provides documentation that the Navy has determined through an effects test that the proposed activity will not affect Guam coastal waters per 15 CFR 930, § 930.35.

The proposed activity is the construction of a new Commander William C. McCool Elementary/Middle School (McCool E/M School) located in the Sumay Housing area within the Apra Harbor Naval Complex and the construction of a new Guam High School located within the U.S. Naval Hospital Complex. The sites for both schools are shown in Enclosures (1) and (2). The new schools are being constructed to replace the existing McCool E/M School located in Apra Heights and the existing Guam High School located on Nimitz Hill.

All construction will be on federally owned lands and is not part of Guam's Coastal Zone; therefore, notification is not technically required. The Navy has completed an "effects" test, however, and has determined that there are no reasonably foreseeable effects to Guam's Coastal Management Program based on the scope of the activity.

The increase in runoff from the new E/M School will be minimal. The slope of the graded areas will be relatively flat and the use of grass swales on the site will minimize the amount of sediment leaving the site. The runoff from the E/M school site

5090  
Ser N45/0469  
24 May 04

currently flows through two existing storm water basins that will further minimize the potential for sediment entering the site. Increase in storm water runoff from the High School will be minimized by use of relatively flat grades in grassed areas such as the athletic fields and use of a storm water retention or subsurface leach bed system. The storm water retention or subsurface leach bed system will be sized for the increase in storm water runoff generated from the construction of the new school.

During construction, the use of Best Management Practices, such as use of temporary sediment basins, silt fences, and drain inlet covers will be used to control erosion. Coordination will also be conducted with the Guam Environmental Protection Agency for approval of a grading permit for the project. If no response is received from your office within 60 days, the Navy shall presume concurrence with the negative determination as per 15 CFR 930.35(c).

If you have any questions on this matter please contact Mr. Robert Wescom, at (671) 339-2349 or E-mail at N456@guam.navy.mil.

Sincerely,

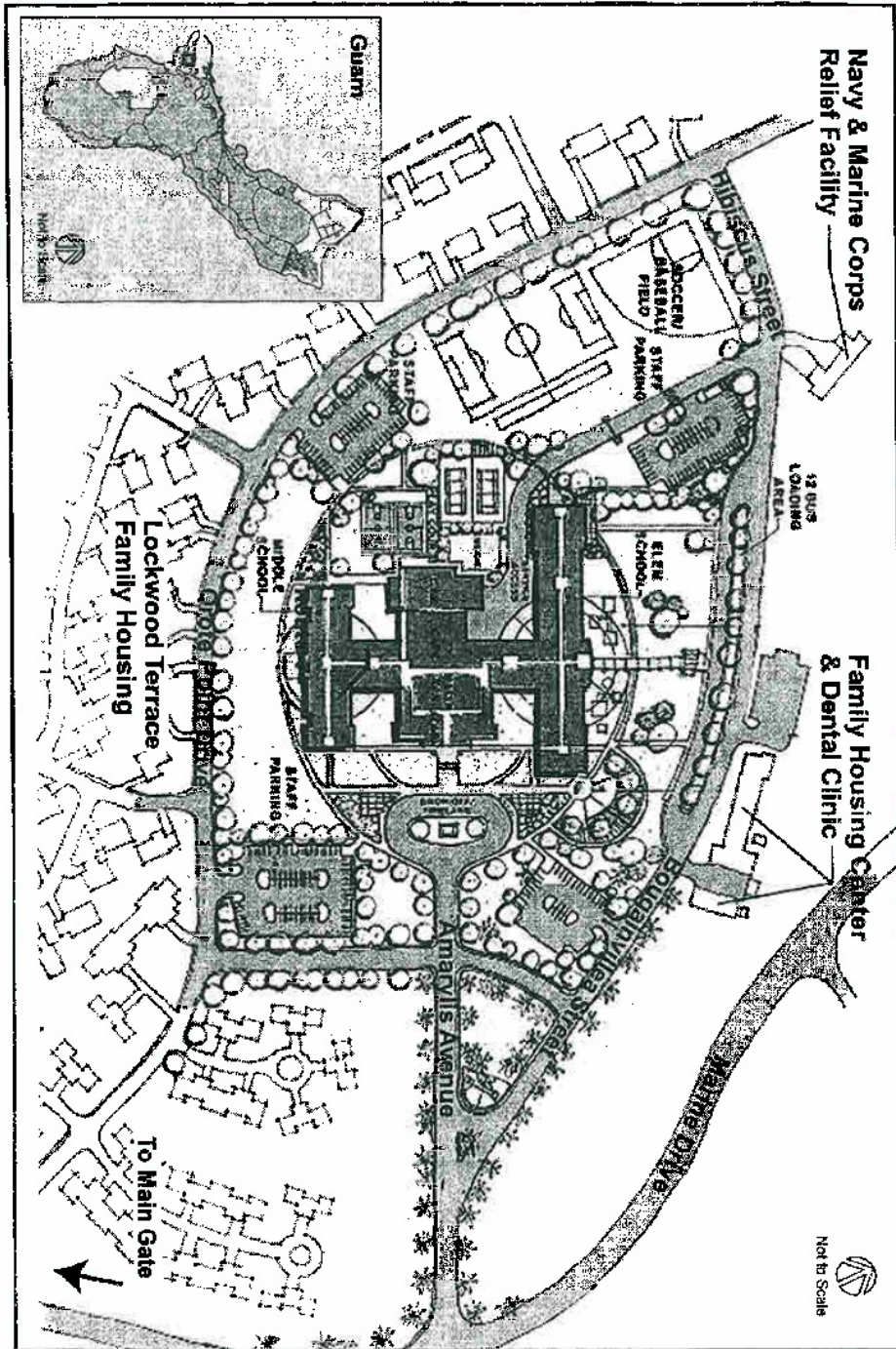


T. E. SCHEUERMANN  
Lieutenant Commander, CEC  
U.S. Navy  
Environmental Officer  
By direction of the Commander

Enclosures: 1. Project Map  
2. Site Layout

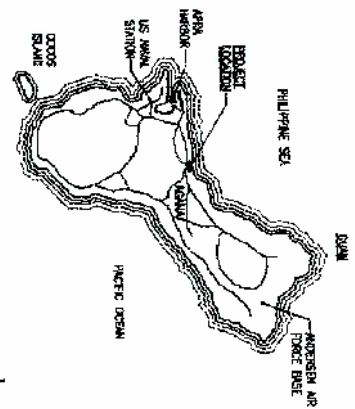
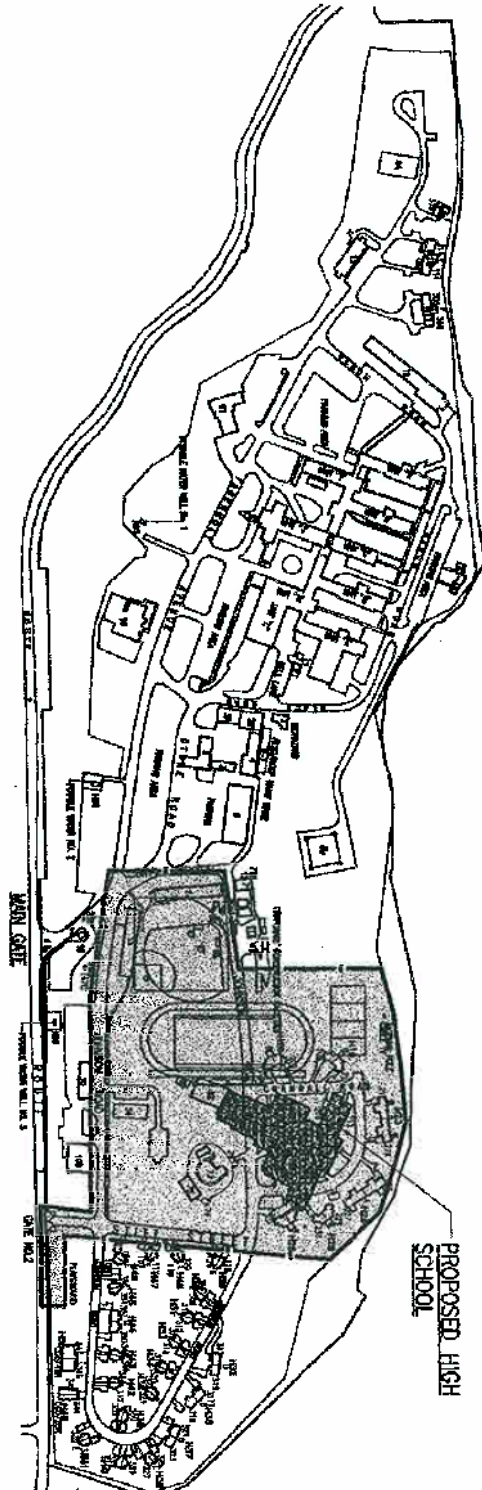
Guam

McCool ES/MS Sunway Site



ENCLOSURE (1)

ENCLOSURE (2)





DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND, PACIFIC  
258 MAKALAPA DR., STE. 100  
PEARL HARBOR, HAWAII 96860-3134

5090P.1G0B...  
Ser ENV1831/ **1638**

20 SEP 2004

Mr. Marc Gagarin, P. E.  
Chief Engineer  
Government of Guam  
Department of Public Works  
542 North Marine Drive  
Tamuning, GU 96911

Dear Mr. Gagarin:

Subj: SUMMARY OF MEETING TO DISCUSS TRAFFIC CONCERNS ON THE  
PROPOSED GUAM HIGH SCHOOL AT NAVAL HOSPITAL, GUAM

Thank you for meeting with Navy representatives on September 1, 2004 to discuss your concerns regarding traffic at the proposed Guam High School to be located at the Naval Hospital Complex Guam. We appreciate your review of the Environmental Assessment for the project and the comments that you relayed to us at our meeting. Enclosed is a copy of the meeting summary for your records.

Should you require further information on this matter, please contact Ms. Paulette Chang of our Environmental Planning Division at (808) 472-1450, by facsimile transmission at (808) 474-5419 or E-Mail: [paulette.chang@navy.mil](mailto:paulette.chang@navy.mil).

Sincerely,

A handwritten signature in cursive script, appearing to read "Melvin Z. Waki", is written below the word "Sincerely,".

MELVIN Z. WAKI, P.E.  
Head  
Environmental Engineering Department

Encl:  
(1) Meeting Summary of  
September 1, 2004

Copy to:  
CO Gary Wick  
Commander  
U. S. Naval Forces Marianas (N4A)  
PSC 489  
FPO, AP 96540-0051

Mr. Julian Ng  
Julian Ng Inc.  
P. O. Box 816  
Kaneohe, HI 96744

5090P.1G0B  
Ser ENV1831/ **1638**

Copy to:  
Dept of Defense Dependent Schools, Pacific  
Attn: Facilities Branch, Mr. Bruce McFarland  
Unit 35007  
FPO AP 96376-5007

Mr. Mike Diekmann, Superintendent  
Dept of Defense Domestic Dependent  
Elementary and Secondary Schools  
PSC 490, Box 7655  
FPO, AP 96538

Dr. Sue Burdick, Assistant Superintendent  
Dept of Defense Domestic Dependent  
Elementary and Secondary Schools  
PSC 490, Box 7655  
FPO, AP 96538

Mr. Garrett Fong, Project Manager  
Naval Facilities Engineering Command, Pacific  
258 Makalapa, Suite 100  
Pearl Harbor, HI 96860

**MEETING SUMMARY**

Date: 1 September 04  
Place: Government of Guam Department of Public Works (DPW), Chief Engineer's Office  
Attendees: Mr. Marc Gagarin, Chief Engineer, Division of Engineering  
Commander Gary Wick, Commander U.S. Naval Forces Marianas (N4A)  
Ms. Paulette Chang, Naval Facilities Engineering Command, Pacific (NAVFAC Pacific), Environmental Planning Division  
Mr. Julian Ng, Julian Ng Inc, Traffic Consultant  
Distribution: Attendees  
Mr. Bruce McFarland, Department of Defense Dependent Schools, Pacific  
Mr. Mike Diekmann, Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) Guam District Superintendent  
Dr. Sue Burdick, DDESS Guam Assistant District Superintendent  
Mr. Garrett Fong, NAVFAC Pacific Project Manager  
File  
Purpose: DPW concerns about traffic along Route 7 at the proposed Guam High School, Naval Hospital Complex, Guam

A meeting was held on 1 September 2004 to address DPW's concerns regarding increased traffic from the proposed Guam High School. The meeting was called following DPW's review of the Draft Environmental Assessment (EA) prepared for the project. The following is a summary of the discussion.

Previously, in the late 1990's, the EA for the existing McCool Elementary/Middle school indicated that no traffic improvements were required. However, after the school was constructed, the Navy asked DPW to install a traffic signal due to the increased pedestrian traffic crossing Route 5 between the school and adjacent Navy family housing areas. DPW installed the signal at the intersection of Route 5 and the access road to the Apra Heights family housing area. DPW is concerned that the same thing will happen for the proposed Guam High School.

DPW acknowledged that the traffic study prepared for the current project indicates that no improvements are required along Route 7. However, in the future, if it is determined that there is a need for traffic improvements (such as a traffic signal or additional bus storage at the gate), DPW's position is that the Navy or the school should pay for these improvements.

The Navy indicated that there will be 13 school busses entering the gate, with the rest of the traffic being attributed primarily to faculty/staff. There will be a bus loading/unloading area within the installation that will be able to accommodate the busses and there is room for some bus storage at the gate for bus traffic. Timing of bus arrivals so that all of the busses do not arrive at the gate at the same time may also be required to minimize impact to Route 7. CDR Wick indicated that he would speak to the school about carefully monitoring and operating the school busses to minimize the impact to Route 7.

DPW also wanted to know how special events will be handled for the school. Special events are usually handled by hiring security/police officers to direct and control traffic.

Julian Ng, the Navy's consultant who prepared the traffic study, indicated that based on his analysis the everyday traffic at the school does not warrant a traffic signal. While the procedures for special events are still being worked out, typically special events do not warrant the installation of a traffic signal. If special events are anticipated to create traffic concerns, the hiring of security/police officers to direct and control traffic is typically done.

Mr. Gagarin agreed that trying to minimize traffic through careful operation of school busses was an acceptable measure, but reiterated DPW's position that if traffic improvements are needed in the future as

a result of the increased school traffic, that the Navy or the school should pay for those improvements. Mr. Gagarin requested that the Navy memorialize the meeting with a memorandum and that DPW's position regarding the traffic improvements be incorporated into the EA.

Note: Any improvements off Navy property will require congressional approval. If improvements within Navy property are implemented (such as additional bus storage at the gate), funding for the project would need to be programmed and are subject to availability of funds.

